ORDER NO. HAD85042533C8

Service Manual

Cassette Deck

RS-B25

DOLBY B·C NR

Dolby B • C NR-Equipped
Stereo Cassette Deck

Color

(K)...Black Type
(S)...Silver Type

Color	Area
(K) (S)	[E].....All European areas except United Kingdom.
(K) (S)	[EK].....United Kingdom.
(K) (S)	[EH].....Holland.
(K) (S)	[EGA]....F.R. Germany.
(K) (S)	[XA].....Asia, Latin America, Middle East and Africa.
(K) (S)	[XL].....Australia.

RS-B25 MECHANISM SERIES

SPECIFICATIONS

Deck system	Stereo cassette deck
Track system	4-track, 2-channel
Heads	
REC/PLAY	MX head
Erasing	Double-gap ferrite head
Motor	1 motor system
Recording system	AC bias
Bias frequency	80 kHz
Erasing system	AC bias
Tape speed	4.8 cm/sec.
Frequency response	
Metal	20 Hz~17,000 Hz
	30 Hz~17,000 Hz (DIN)
	40 Hz~16,000 Hz±3 dB
CrO_2	20 Hz~17,000 Hz
	30 Hz~16,000 Hz (DIN)
	40 Hz~15,000 Hz±3 dB
Normal	20 Hz~16,000 Hz
	30 Hz~15,000 Hz (DIN)
	40 Hz~14,000 Hz±3 dB
S/N (Signal level=max. recording level, CrO_2 type tape)	
Dolby B NR in	67 dB (CCIR)
Dolby C NR in	75 dB (CCIR)
NR out	57 dB (A weighted)

Wow and flutter	0.07% (WRMS)
	±0.13% (DIN)
Fast Forward and Rewind Time	
	Approx. 90 seconds with C-60 cassette tape
Input sensitivity and impedance	
MIC	0.25 mV/400Ω~10 kΩ
LINE	60 mV/47 kΩ
Output voltage and impedance	
LINE	400 mV/1.5 kΩ
HEADPHONES	30 mV/8Ω
Power consumption	16 W
Power supply	
[E][EH][EGA]	AC; 220 V, 50 Hz/60 Hz
[EK][XL]	AC; 240 V, 50 Hz/60 Hz
[XA]	AC; 110 V/127 V/220 V/240 V, 50 Hz/60 Hz
	Preset power voltage 240 V
Dimensions (W×H×D)	430×99.5×229 mm
Weight	3.4 kg

Design and specifications are subject to change without notice.

*'Dolby' and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

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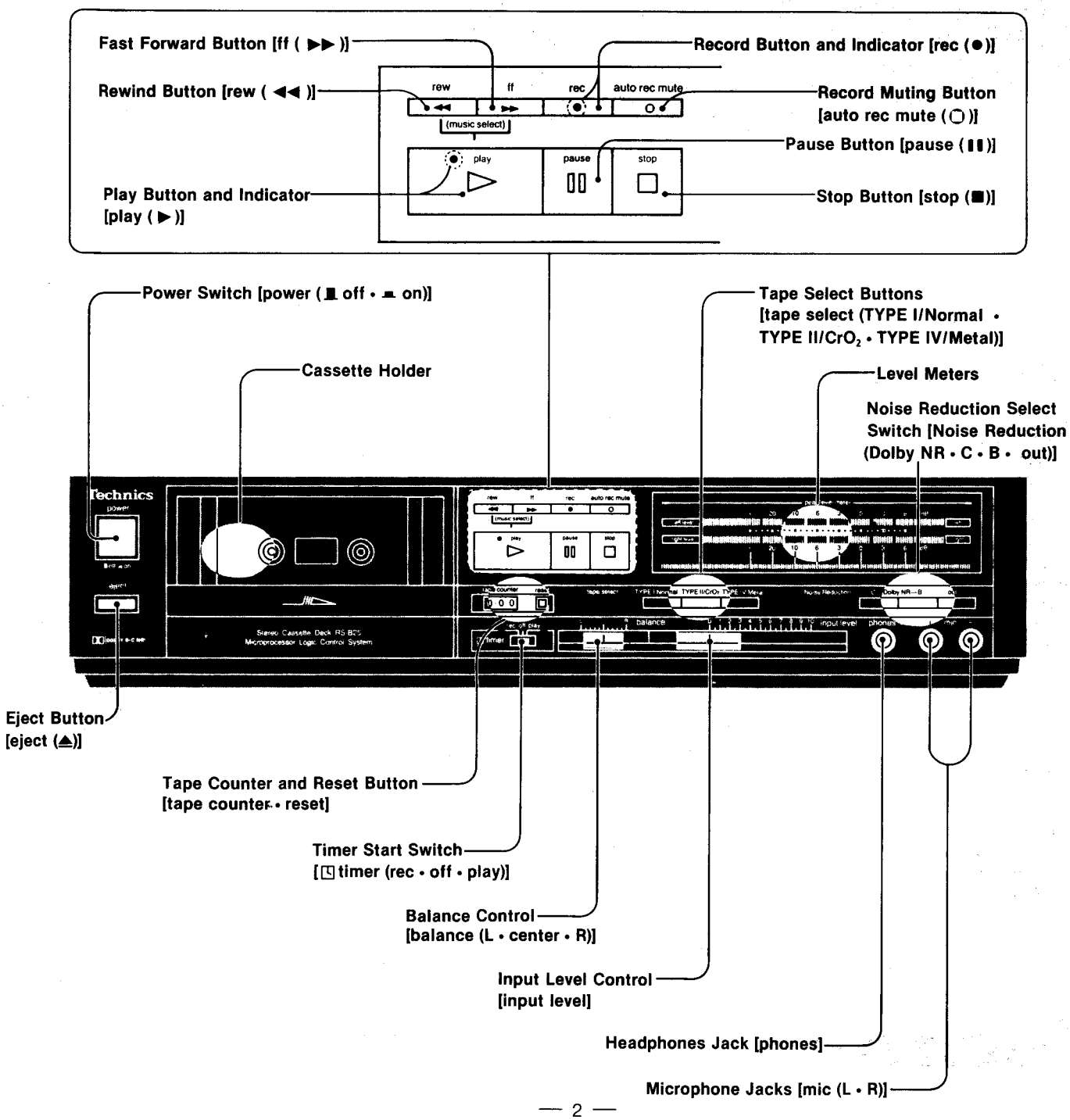
■ LOCATION OF CONTROLS


Fast Forward Button [ff (▶▶)]
Rewind Button [rew (◀◀)]
Play Button and Indicator [play (▶)]
Record Button and Indicator [rec (●)]
Record Muting Button [auto rec mute (○)]
Pause Button [pause (▮▮)]
Stop Button [stop (■)]
rew
ff
rec
auto rec mute
(music select)
play
pause
stop
Power Switch [power (off • on)]
Cassette Holder
Tape Select Buttons [tape select (TYPE I/Normal • TYPE II/CrO2 • TYPE IV/Metal)]
Level Meters
Noise Reduction Select Switch [Noise Reduction (Dolby NR • C • B • out)]
Technics
Eject Button [eject (⏏)]
Tape Counter and Reset Button [tape counter • reset]
Timer Start Switch [timer (rec • off • play)]
Balance Control [balance (L • center • R)]
Input Level Control [input level]
Headphones Jack [phones]
Microphone Jacks [mic (L • R)]

■ DISASSEMBLY INSTRUCTIONS

Ref. No. 1	How to remove the case cover
Procedure 1	• Remove the 4 screws (❶~❹).

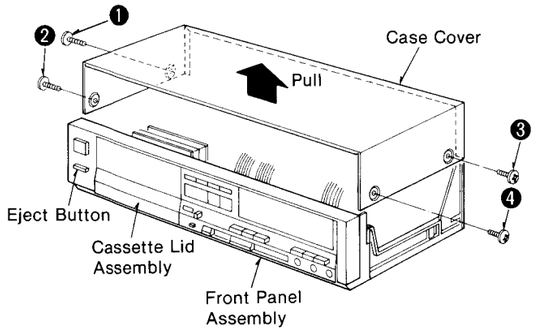


Fig. 1

Ref. No. 2	How to remove the front panel assembly
Procedure 1 → 2	• Remove 2 connectors. • Remove 3 flat cables (J2, J3, Y).

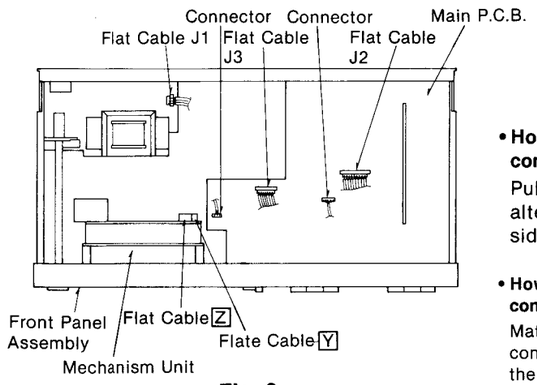
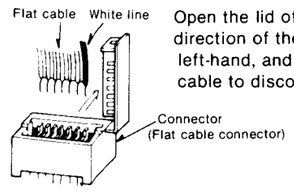


Fig. 2

How to remove flat cable



Open the lid of connector in the direction of the arrow as shown left-hand, and extract the flat cable to disconnect.

• Remove 3 screws (❶~❸).
• Push 2 tabs aside.

Ref. No. 3	How to remove the main P.C.B.
Procedure 1 → 3	• Push 4 tabs aside, and then pull down the back chassis. • Remove 2 screws (❹, ❺), and then remove the earth plate. • Remove 3 screws (❶~❸). • Pull main P.C.B. in the direction of arrow Ⓐ.

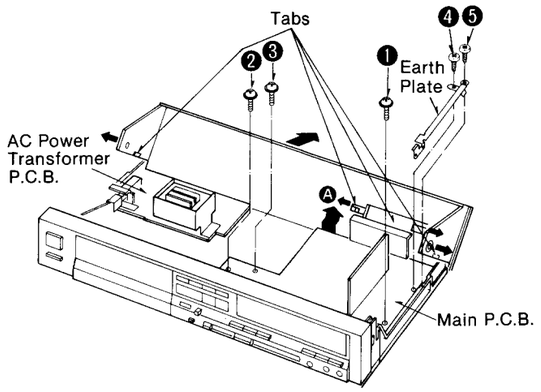


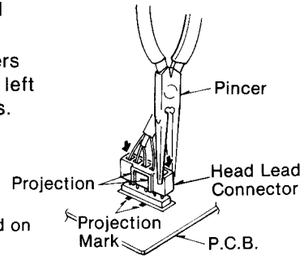
Fig. 4

• How to remove the head lead connector

Pull the connector with pincers alternatively on the right and left sides as shown by the arrows.

• How to insert the head lead connector

Match the projections of the connector with the marks printed on the P.C.B. and then insert the connector completely.



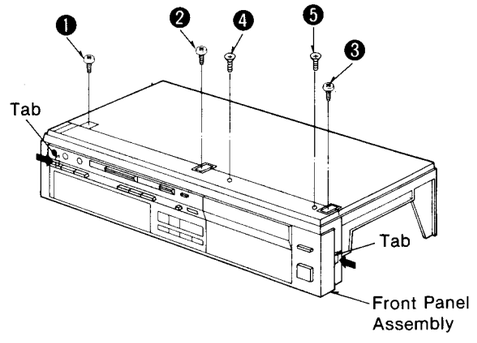


Fig. 3

Ref. No. 4	How to remove the FL meter P.C.B.
Procedure 1 → 4	• Remove 4 screw (❶~❹), and then remove the strengthen angle. • Push 4 tabs aside.

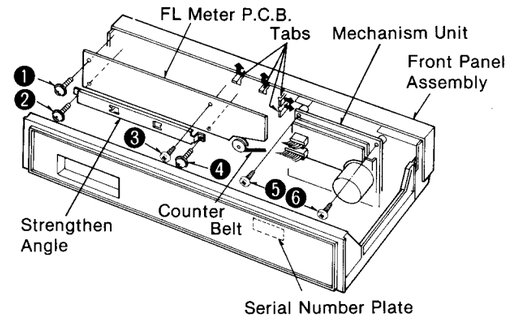


Fig. 5

Ref. No. 5	How to remove the mechanism unit
Procedure 1 → 5	• Push the eject button (see fig. 1). • Remove 2 connectors (see fig. 2). • Remove 2 flat cables (Y, Z) (see fig. 2). • Remove 3 screws (❸~❺) (see fig. 3). • Remove 2 screws (❺, ❻) (see fig. 5). • Remove the counter belt (see fig. 5).

*** Serial No. Indication**

• The serial number plate of this product is attached to the back chassis (shown in fig. 5).

■ MEASUREMENTS AND ADJUSTMENTS

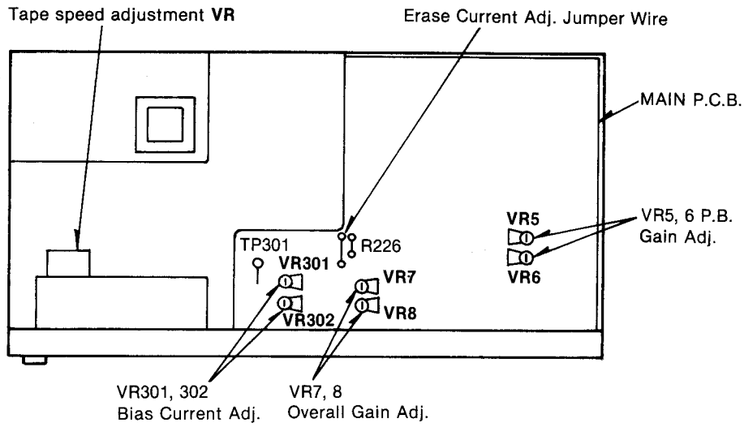


Fig. 1

NOTES: Set switches and controls in the following positions, unless otherwise specified.
- Make sure heads are clean
- Make sure capstan and pressure roller are clean
- Judgeable room temperature 20±5°C (68±9°F)
- Input level controls: Maximum
- Dolby NR switch: OUT
- Balance control: Center

Ⓐ Head azimuth adjustment

Condition:
- Playback mode
- Normal tape mode

Equipment:
- EVM (Electronic Voltmeter)
- Oscilloscope
- Test tape (azimuth)...QZZCFM

L-CH/R-CH output balance adjustment

1. Make connections as shown in fig. 2.

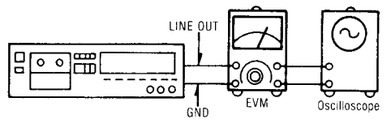


Fig. 2

2. Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (B) in fig. 3 for maximum output L-CH and R-CH levels. When the output levels of L-CH and R-CH are not at maximum at the same point adjust as follows.
3. Turn screw (B) shown in fig. 3 to find angles A and C (points where peak output levels for left and right channels are obtained). Then, locate angle B between angles A and C, i.e., point where L-CH and R-CH outputs are balanced. (Refer to figs. 3 and 4.)

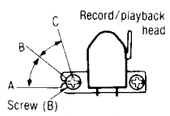


Fig. 3

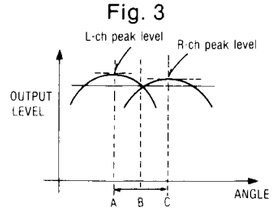


Fig. 4

L-CH/R-CH phase adjustment

4. Make connections as shown in fig. 5.
5. Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (B) shown in fig. 3 so that pointers of the two EVMs swing to maximum and a lissajous waveform as illustrated in fig. 6 is obtained on the oscilloscope.

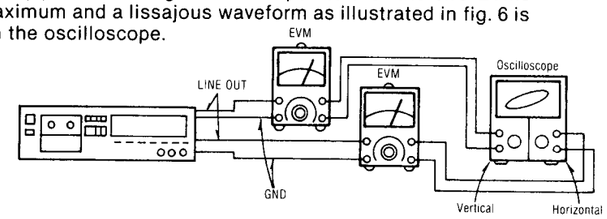


Fig. 5

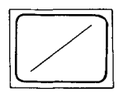


Fig. 6

Ⓑ Tape speed

Condition:
- Playback mode
- Normal tape mode

Equipment:
- Digital frequency counter
- Test tape...QZZCWAT

Tape speed accuracy

1. Test equipment connection is shown in fig. 7.
2. Playback test tape (QZZCWAT 3,000Hz), and supply playback signal to the digital frequency counter.
3. Measure this frequency.
4. On the basis of 3,000Hz, determine value by following formula:

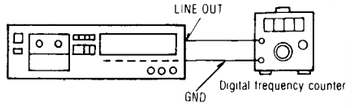


Fig. 7

$$\text{Tape speed accuracy} = \frac{f-3{,}000}{3{,}000} \times 100(\%)$$ where, f = measured value

5. Take measurement at middle section of tape.

Standard value: ±0.33% (3000±10Hz)

6. If measured value is not within the standard value, adjust it by using the tape speed adjustment VR shown in fig. 1.
   Note: Please use non metal type screwdriver when you adjust tape speed accuracy on this unit.

Tape speed fluctuation

Make measurements in same manner as above (beginning, middle and end of tape), and determine the difference between maximum and minimum values and calculate as follows:

$$\text{Tape speed fluctuation} = \frac{f_1-f_2}{3{,}000} \times 100(\%)$$ f_1 = maximum value, f_2 = minimum value

Standard value: Less than 1%

Ⓒ Playback frequency response

Condition:
- Playback mode
- Normal tape mode

Equipment:
- EVM (Electronic Voltmeter)
- Oscilloscope
- Test tape...QZZCFM

1. Test equipment connection is shown in fig. 2.
2. Playback the frequency response portion of test tape (QZZCFM).
3. Measure output level at 315Hz, 12.5kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz and 63Hz, and compare each output level with the standard frequency 315Hz, at LINE OUT.
4. Make measurements for both channels.
5. Make sure that the measured values are within the range specified in the frequency response chart (Shown in fig. 8).

Playback frequency response chart

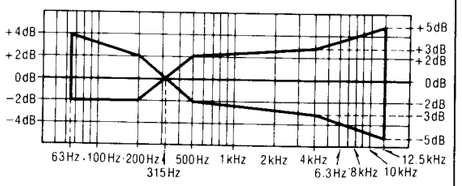


Fig. 8

Ⓓ Playback gain

Condition:
- Playback mode
- Normal tape mode

Equipment:
- EVM (Electronic Voltmeter)
- Oscilloscope
- Test tape...QZZCFM

1. Test equipment connection is shown in fig. 2.
2. Playback standard recording level portion on test tape (QZZCFM 315Hz) and, using EVM, measure the output level at LINE OUTs.
3. Make measurements for both channels.

Standard value: 0.4V±0.05V

Adjustment

1. If the measured value is not within the standard, adjust VR5 (L-CH) or VR6 (R-CH).
2. After adjustment, check "Playback frequency response" again.

Ⓔ Erase current

Condition:
- Record mode
- Metal tape mode

Equipment:
- EVM (Electronic Voltmeter)
- Oscilloscope

1. Test equipment connection is shown in fig. 9.
2. Place UNIT into metal tape mode.
3. Press the record and pause buttons.
4. Read voltage on EVM and calculate erase current by following formula:

$$\text{Erase current (A)} = \frac{\text{Voltage across resistor R301}}{1\ (\Omega)}$$

Standard value: 155±15mA (Metal) (155±15mV)

5. If the measured value is not within the standard value adjust it by following the adjustment instructions.

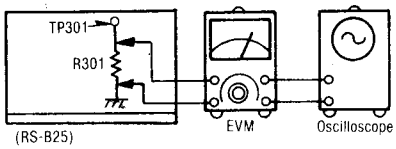


Fig. 9

Adjustment

- If the erase current is more than 170mA, cut the jumper wire (See fig. 1).

Ⓕ Overall frequency response

Condition:
- Record/playback mode
- Normal tape mode
- CrO_2 tape mode
- Metal tape mode
- Input level controls...MAX

Equipment:
- EVM (Electronic Voltmeter)
- ATT
- AF oscillator
- Oscilloscope
- Resistor (600Ω)
- Test tape (reference blank tape)
  - ...QZZCRA for Normal
  - ...QZZCRX for CrO_2
  - ...QZZCRZ for Metal

Note:

Before measuring and adjusting, the overall frequency response make sure of the playback frequency response (For the method of measurement, please refer to the playback frequency response).

(Recording equalizer is fixed)

1. Make connections as shown in fig. 11.
2. Place UNIT into normal tape mode and insert the normal reference blank test tape (QZZCRA).
3. Supply a 1kHz signal from the AF oscillator through ATT to LINE IN.
4. Adjust ATT so that input level is −20dB below standard recording level (standard recording level = 0 VU).
5. Adjust the AF oscillator frequency to 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz and 12.5kHz signals, and record these signals on the test tape.
6. Playback the signals recorded in step 6, and check if the frequency response curve is within the limits shown in the overall frequency response chart for normal tapes (fig. 10). (If the curve is within the charted specifications, proceed to steps 7, 8 and 9.)
   If the curve is not within the charted specifications, adjust as follows;

Overall frequency response chart (Normal)

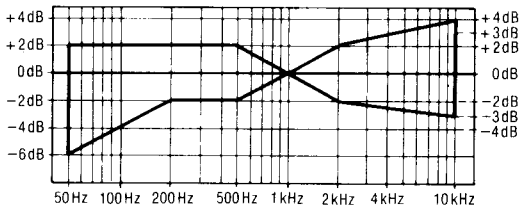


Fig. 10

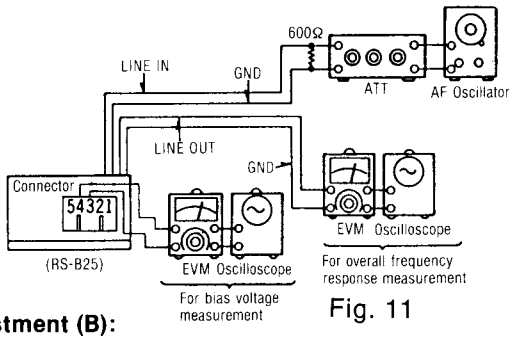


Fig. 11

Adjustment (A):

When the curve exceeds the overall specified frequency response chart (fig. 10) as shown in fig. 12.

1) Increase bias current by turning VR301 (L-CH) and VR302 (R-CH). (See fig. 1.)
2) Repeat steps 5 and 6 for confirmation (Proceed to steps 7, 8 and 9 if the curve is now within the charted specifications as shown fig. 10.)
3) If the curve still exceeds the specifications (fig. 10), increase bias current further and repeat steps 5 and 6.

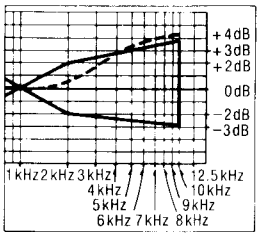


Fig. 12

Adjustment (B):

When the curve falls below the overall specified frequency response chart (fig. 10) as shown in fig. 13.

1) Reduce bias current by turning VR301 (L-CH) and VR302 (R-CH).
2) Repeat steps 5 and 6 for confirmation (Proceed to steps 7, 8 and 9 if the curve is now within the charted specifications as shown fig. 10.)
3) If the curve still falls below the charted specifications (fig. 10), reduce bias current further and repeat steps 5 and 6.

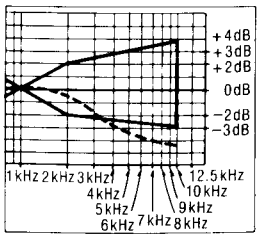


Fig. 13

7. Place UNIT into CrO_2 tape mode.
8. Change test tape to CrO_2 reference blank test tape (QZZCRX), and record 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz and 15kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for CrO_2 tapes (fig. 14).
9. Place UNIT into metal tape mode and change test tape to metal reference blank test tape (QZZCRZ), and record 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz, 12.5kHz and 15kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for metal tapes (fig. 14).
10. Confirm that bias currents are approximately as follows when the UNIT is set at different tape mode.
    • Measure the voltage across the head using a EVM.

	around 7.7V (Normal position)
Standard value:	**around 13.3V (CrO_2 position)**
	around 18.3V (Metal position)

Overall frequency response chart (CrO_2, Metal)

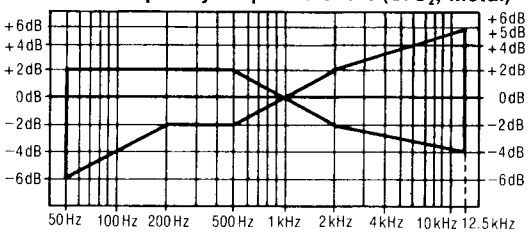


Fig. 14

⑥ Overall gain

Condition:
- Record/playback mode
- Normal tape mode
- Input level controls...MAX
- Standard input level;
  MIC .....-72^{+5}_{-3}dB (0.25mV)
  LINE IN .....-24 ± 4dB (63mV)

Equipment:
- EVM (Electronic Voltmeter)
- ATT
- Resistor (600Ω)
- Test tape (reference blank tape) ...QZZCRA for Normal
- AF oscillator
- Oscilloscope

1. Test equipment connection is shown in fig. 15.
2. Insert the normal reference blank tape (QZZCRA).
3. Place UNIT into record mode.
4. Supply a 1kHz signal through ATT (−24dB) from AF oscillator, to LINE IN.
5. Adjust ATT until monitor level at LINE OUT becomes 0.4V.
6. Playback recorded tape, and make sure that the output level at LINE OUT becomes 0.4V.
7. If measured value is not 0.4V, adjust it by using VR7 (L-CH) or VR8 (R-CH).
8. Repeat from step (2).

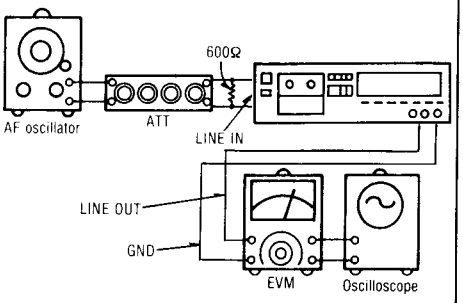


Fig. 15

⑦ LED meter

Condition:
- Record mode
- Input level controls...MAX

Equipment:
- EVM (Electronic Voltmeter)
- ATT
- Resistor (600Ω)
- AF oscillator
- Oscilloscope

1. Make connections as shown in fig. 15.
2. In the recording pause mode, apply 1kHz (−24dB) to LINE IN.
3. Adjust ATT so that output level at LINE OUT is 0.4V.
4. At this time, check that 0dB indicator is lighted halfway (intermediate brightness between full brightness and light-out: See fig. 16).

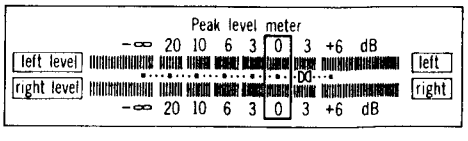


Fig. 16

❶ Dolby NR circuit

Condition:
- Record mode
- Dolby NR switch...IN/OUT
- Dolby NR select switch ...B/C
- Input level controls...MAX

Equipment:
- EVM (Electronic Voltmeter)
- ATT
- Resistor (600Ω)
- AF oscillator
- Oscilloscope

Record side

- Check of the Dolby-B type encoder characteristics

1. Make connections as shown in fig. 17.
2. Set the unit to the record mode. (NR select switch is OUT.)
3. Apply a 1kHz signal to LINE IN.
4. Adjust the ATT so that the output level at Pin 7 of IC401 (L-CH) and IC402 (R-CH) is 12.3mV.
5. The output level at pin 21 should be 0dB (375mV).
6. Set the NR select switch to B, and make sure that the output signal level at pin 21 of IC401(L-CH) and IC402 (R-CH) is +6±1.5dB (753mV).
7. Set the NR select switch to OUT, and adjust the frequency to 5kHz. The output signal level at pin 21 should be 0dB. (375mV).
8. Set the NR select switch to B and make sure that the output signal level at pin 21 of IC401 (L-CH) and IC402 (R-CH) is +8±1.5dB (948mV).

- Check to Dolby-C type encoder characteristics

9. Repeat steps 1-5 above.
10. Set the NR select switch to C and make sure that the output signal level at pin 21 of IC401 (L-CH) and IC402 (R-CH) is +11.5±2dB (1.4V).
11. Set the NR select switch to OUT and adjust the frequency to 5kHz. The output signal at pin 21 should be 0dB.
12. Set the NR select switch to C and make sure that the output signal level at pin 21 of IC401 (L-CH) and IC402 (R-CH) is +8.5±2dB (1V).

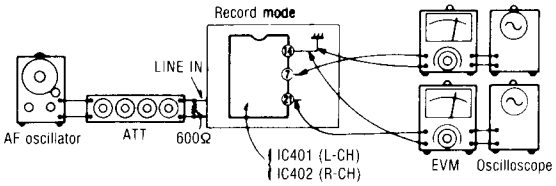
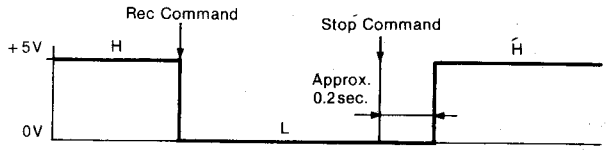
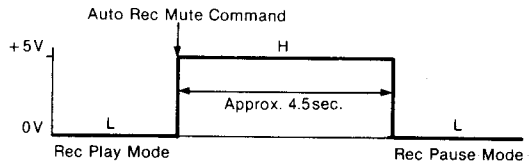
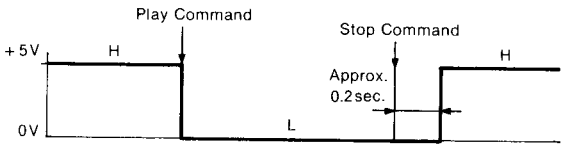
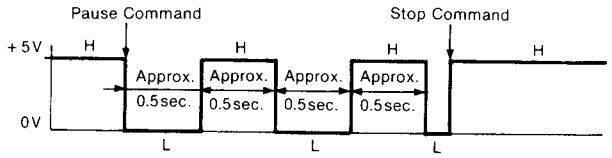
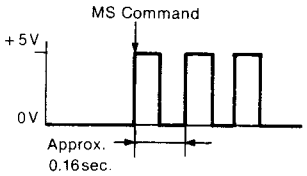
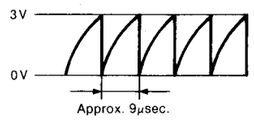
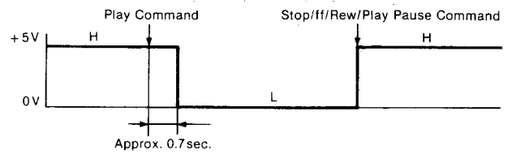
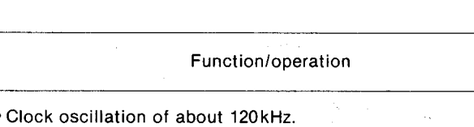
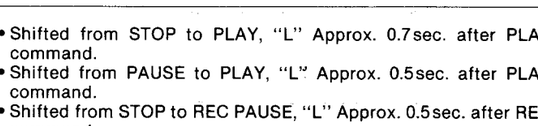
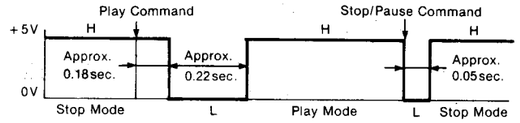
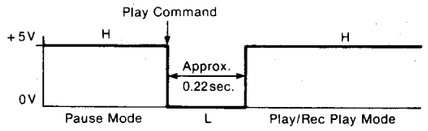
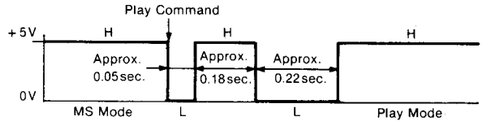


Fig. 17

■ MICROCOMPUTER TERMINAL FUNCTION AND WAVEFORM (IC901: LM6417E1825)

Terminal No.	Symbol	Name	Function/operation
1.	PDϕ	Rec Indication Output	• "L" level on receiving REC command. • "H" level Apporx. 0.2sec. after STOP command. • "L" level immediately after power ON in Timer REC. 
2.	PD1	Rec Mute	• In REC PAUSE mode, "H" with AUTO REC MUTE button pressed; "L" with the button released. • In REC play mode, (1) "H" with AUTO REC MUTE button pressed; the mode changes to REC PAUSE, Approx. 4.5sec. later, and then the level is "L".  (2) When AUTO REC MUTE button is pressed for Approx. 4.5sec. or over, the mode changes to REC PAUSE with AUTO REC MUTE button released, and then the level is "L". (3) When PLAY button is pressed within Approx. 4.5sec. after pressing AUTO REC MUTE button, the mode changes to REC PLAY, and then the level is "L".
3.	PD2	——	• Non Connection.
4.	PD3	Play Indication Output	• "L" on receiving play command. • "H" Approx. 0.2sec. after STOP command. • "L" immediately after POWER ON in Timer Play. 
		Pause Indication Output	• "L" and "H" are repeated at Approx. 1sec. cycle on receiving PAUSE command. • "H" on receiving STOP command. 
		MS Indication Output	• "L" and "H" are repeated at Approx. 0.16sec. cycle on receiving MS command. 

Terminal No.	Symbol	Name	Function/operation
5.	OSC	Clock Oscillation	• Clock oscillation of about 120kHz. **Note:** Do not connect anything to this terminal during other measurement because it will be otherwise affected by the probe. 
6.	PEϕ	Audio Muting	• Shifted from STOP to PLAY, "L" Approx. 0.7sec. after PLAY command. • Shifted from PAUSE to PLAY, "L" Approx. 0.5sec. after PLAY command. • Shifted from STOP to REC PAUSE, "L" Approx. 0.5sec. after REC command. • Shifted from MS to PLAY, "L" Approx. 0.8sec. after PLAY command. 
7.	PE1	Motor Output	• "H" in STOP mode, "L" in other modes.
8.	PE2	FF/REW Plunger Output	• "L" for a short time during FF/REW/MS changeover. (1) STOP → FF → STOP  (2) STOP → REW → STOP (3) PLAY → MS (FF) → PLAY/STOP  (4) PLAY → MS (REW) → PLAY/STOP

Terminal No.	Symbol	Name	Function/operation
9.	PE3	PLAY Plunger Output	• "L" for a short time during PLAY/REC PLAY/MS changeover. (1) STOP → PLAY → STOP/PAUSE  (2) PAUSE/REC PAUSE → PLAY/REC PLAY  (3) MS (FF/REW) → PLAY  (4) MS (FF/REW) → STOP
10.	TEST	TEST	• Connection to GND.
11.	Vss	——	• Connection to GND.
12.	INT	Reel Table Pulse Input	• Rotation of reel table (with ring, magnet) is detected by Hall IC (DN6838-S) to judge the tape end. • Rectangular wave input in PLAY, FF, REW, MS.
13.	˙RST	Reset Terminal	• Used to reset the microcomputer when power is thrown in. • Reset at "L" level (0.3 volt or less).
14.	VDD	Power Supply Terminal	• Operative on 5.2 volts.
15.	PAϕ	Key Input REW (S706) TIMER (S1)	• Input of REW, Timer REC, MS, FF/REW switch. • The above-mentioned inputs are read in accordance with PCϕ, PC1, PC2, PC3 scanning.
16.	PA1	Key Input FF (S707) TIMER (S1) PLAY (S901)	• Input of FF, Timer PLAY, switch. • The above-mentioned inputs are read in accordance with PCϕ, PC1, PC2 scanning.

Terminal No.
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c. after PLAY
sec. after REC
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Command

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sec.

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sec.

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0.05sec.

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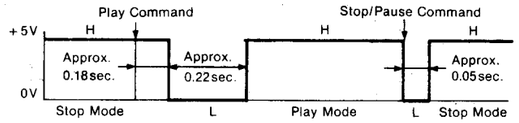
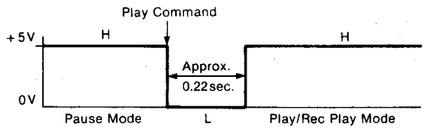
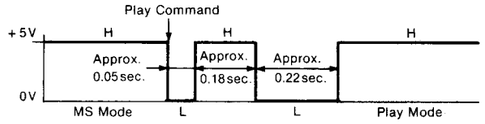
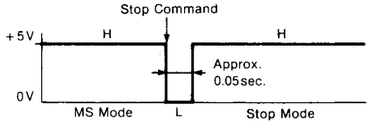
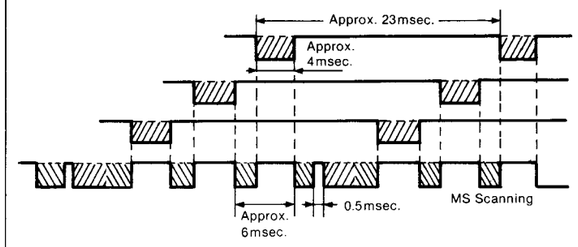
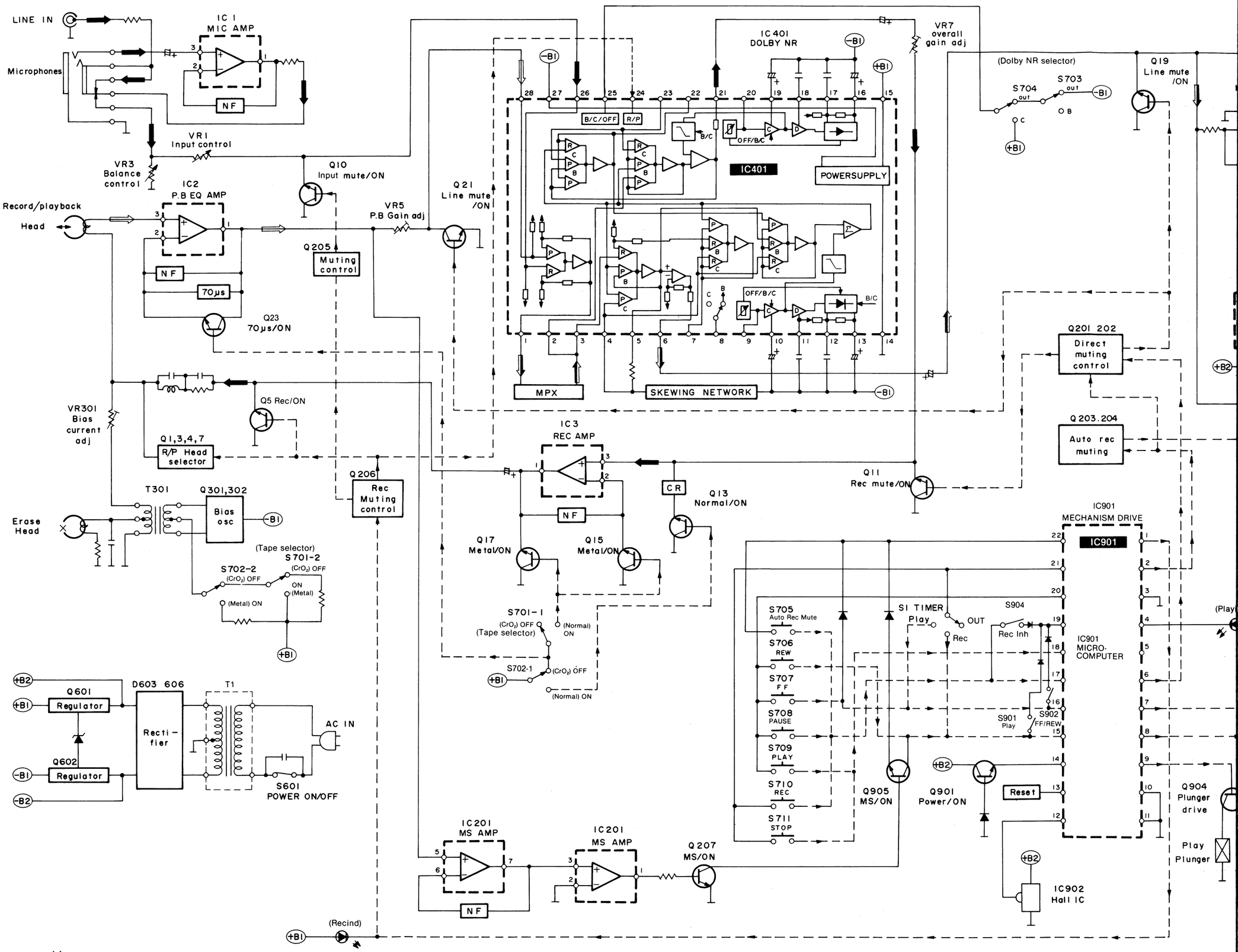
Approx.
0.05sec.

Terminal No.	Symbol	Name	Function/operation
9.	PE3	PLAY Plunger Output	• "L" for a short time during PLAY/REC PLAY/MS changeover. (1) STOP → PLAY → STOP/PAUSE  (2) PAUSE/REC PAUSE → PLAY/REC PLAY  (3) MS (FF/REW) → PLAY  (4) MS (FF/REW) → STOP 
10.	TEST	TEST	• Connection to GND.
11.	Vss	——	• Connection to GND.
12.	INT	Reel Table Pulse Input	• Rotation of reel table (with ring, magnet) is detected by Hall IC (DN6838-S) to judge the tape end. • Rectangular wave input in PLAY, FF, REW, MS.
13.	$\overline{RST}$	Reset Terminal	• Used to reset the microcomputer when power is thrown in. • Reset at "L" level (0.3 volt or less).
14.	VDD	Power Supply Terminal	• Operative on 5.2 volts.
15.	PAϕ	Key Input REW (S706) TIMER (S1)	• Input of REW, Timer REC, MS, FF/REW switch. • The above-mentioned inputs are read in accordance with PCϕ, PC1, PC2, PC3 scanning.
16.	PA1	Key Input FF (S707) TIMER (S1) PLAY (S901)	• Input of FF, Timer PLAY, switch. • The above-mentioned inputs are read in accordance with PCϕ, PC1, PC2 scanning.

Terminal No.	Symbol	Name	Function/operation
17.	PA2	Key Input PAUSE (S708) REC (S710) AUTO REC MUTE (S705) REC INH. (S904)	• Input of PAUSE, REC, AUTO REC MUTE, REC INH. switch. • The above-mentioned inputs are read in accordance with PCϕ, PC1, PC2, PC3 scanning.
18.	PA3	Key Input PLAY (S709) STOP (S711)	• Input of PLAY, STOP switch. • The above-mentioned inputs are read in accordance with PC1, PC2 scanning.
19.	PCϕ	Input Switch Scanning	
20.	PC1		
21.	PC2		
22.	PC3		**Note:** (1) During scan signal measurement, dull up between pins ⑲~㉒) and VDD with about 10kΩ resistance. (2) There are 2 types of scans of PC3. (For MS detection)

RS-B25 RS-B25

■ BLOCK DIAGRAM



IC401
DOLBY NR
VR7
overall
gain adj
(Dolby NR selector)
S704
S703
Q19
Line mute
/ON
LINE OUT
IC4
HEADPHONES AMP
Headphones
Rch
NF
D711
LED METER
IC701
METER DRIVE
Q201 202
Direct
muting
control
Q203.204
Auto rec
muting
Q702
Rec/ON
Q10
Input mute/ON
Q21
Line mute
/ON
VR5
P.B Gain adj
Q205
Muting
control
B/C/OFF
R/P
B/C
OFF/B/C
IC401
POWERSUPPLY
MPX
SKEWING NETWORK
IC3
REC AMP
Q206
Rec
Muting
control
Q11
Rec mute/ON
CR
Q13
Normal/ON
NF
Q17
Metal/ON
Q15
Metal/ON
S701-1
(Tape selector)
(Normal)
ON
S702-1
(Normal) ON
IC901
MECHANISM DRIVE
IC901
S705
Auto Rec Mute
S706
REW
S707
F F
S708
PAUSE
S709
PLAY
S710
REC
S711
STOP
SI TIMER
Play
OUT
Rec
S904
Rec Inh
IC901
MICRO-
COMPUTER
S901
Play
S902
FF/REW
Reset
(Playind)
Q905
MS/ON
Q901
Power/ON
Q904
Plunger
drive
Q903
Plunger
drive
Q902
Motor
drive
Play
Plunger
FF/REW
Plunger
Motor
IC902
Hall IC
AC IN
ON/OFF
(Recind)
IC201
MS AMP
IC201
MS AMP
Q207
MS/ON
NF

■ ELECTRICAL PARTS LIST

NOTES: RESISTORS

ERD.....Carbon
ERG .....Metal-oxide
ERS.....Metal-oxide
ERO .....Metal-film
ERX.....Metal-film
ERQ .....Fuse type metallic
ERC.....Solid
ERF.....Cement

CAPACITORS

ECBA .....Ceramic
ECG□ .....Ceramic
ECK□ .....Ceramic
ECC□ .....Ceramic
ECF□ .....Ceramic
ECQM .....Polyester film
ECQE .....Polyester film
ECQF .....Polypropylene
ECE□ .....Electrolytic
ECE□N ...Non polar electrolytic
ECQS .....Polystyrene
ECS□ .....Tantalum
QCS .....Tantalum

REPLACEMENT PARTS LIST

Important safety notice
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Areas

* [E] For all European areas except United Kingdom.
* [EK] For United Kingdom.
* [EH] For Holland.
* [EGA] For F.R. Germany.
* [XA] For Asia, Latin America, Middle East and Africa.
* [XL] For Australia.

• RESISTORS

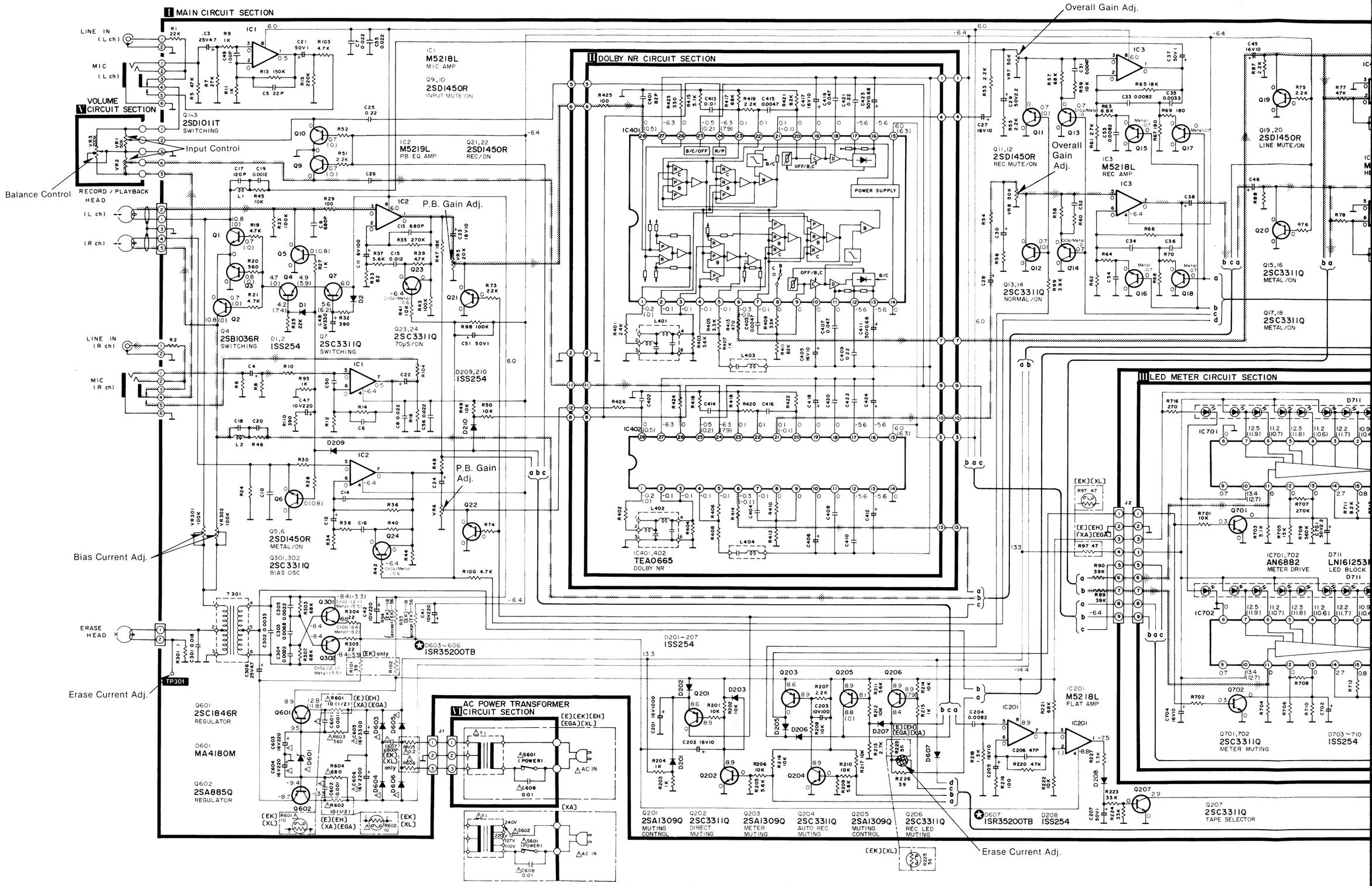
Ref. No.	Part No.	Value
R 1, 2	ERD25TJ223	22k
R 5, 6	ERD25TJ473	47k
R 7, 8	ERD25TJ273	27k
R 9, 10, 11, 12	ERD25FJ102	1k
R 13, 14	ERD25TJ154	150k
R 15, 16	ERD25TJ224	220k
R 19	ERD25FJ472	4.7k
R 20	ERD25FJ561	560
R 21	ERD25FJ472	4.7k
R 23, 24	ERD25TJ104	100k
R 25	ERD25TJ223	22k
R 27, 28	ERD25FJ102	1k
R 29, 30	ERD25FJ101	100
R 32	ERD25FJ391	390
R 33, 34	ERD25FJ820	82
R 35, 36	ERD25TJ274	270k
R 37, 38	ERD25FJ562	5.6k
R 39, 40	ERD25FJ472	4.7k
R 41, 42	ERD25FJ103	10k
R 43, 44	ERD25TJ104	100k
R 45, 46	ERD25FJ103	10k
R 47, 48	ERD25TJ183	18k
R 49, 50, 51, 52	ERD25FJ103	10k
R 53, 54, 55, 56	ERD25FJ222	2.2k
R 57, 58	ERD25TJ683	68k
R 59, 60	ERD25FJ103	10k
R 61, 62	ERD25FJ272	2.7k
R 63, 64	ERD25FJ682	6.8k
R 65, 66	ERD25TJ183	18k
R 67, 68, 69, 70	ERD25FJ181	180
R 73, 74, 75, 76	ERD25FJ222	2.2k
R 77, 78	ERD25TJ473	47k
R 79, 80	ERD25TJ184	180k
R 81, 82	ERD25FJ151	150
R 83, 84	ERD25FJ102	1k
R 87, 88	ERD25FJ222	2.2k
R 89, 90	ERD25TJ393	39k
R 91, 92	ERD25FJ103	10k
R 93 [E][EH] [EGA][XA]	ERD25FJ560	56
R 93 [EK]	ERD25FJ180	18
R 94 [E][EH] [EGA][XA]	ERD25FJ560	56
R 94 [EK]	ERD25FJ180	18
R 95	ERD25FJ102	1k
R 96	ERD25FJ103	10k
R 97 [E][EH] [EGA][XA]	ERD25FJ470	47
R 97 [EK][XL]	ERD2FCG470	47
R 98	ERD25TJ104	100k
R 99	ERD25FJ392	3.9k
R 100	ERD25FJ472	4.7k
R 101, 102 [EK]	ERG1ANJ390	39
R 103, 104	ERD25FJ472	4.7k
R 107, 108	ERD25FJ560	56
R 110	ERD25FJ391	390
R 201, 202	ERD25FJ103	10k
R 203, 204	ERD25FJ102	1k
R 205	ERD25FJ562	5.6k
R 206	ERD25FJ103	10k
R 207	ERD25FJ222	2.2k
R 208	ERD25FJ103	10k
R 209	ERD25FJ562	5.6k
R 210	ERD25FJ103	10k
R 211	ERD25FJ562	5.6k
R 212	ERD25FJ103	10k
R 213	ERD25FJ272	2.7k
R 214	ERD25FJ103	10k
R 215	ERD25FJ102	1k
R 216, 217	ERD25FJ103	10k
R 218	ERD25FJ152	1.5k
R 219	ERD25FJ101	100
R 220	ERD25TJ473	47k
R 221	ERD25TJ683	68k
R 222	ERD25FJ103	10k
R 223, 224	ERD25TJ333	33k
R 225 [E][EH] [EGA][XA]	ERD25FJ560	56
R 225 [EK][XL]	ERD2FCG560	56
R 226	ERD25FJ390	39
R 227	ERD25FJ332	3.3k
R 301	ERD25FJ1R0	1.0
R 302, 303	ERD25TJ223	22k
R 304, 305	ERD25FJ220	22
R 401, 402	ERD25FJ242	2.4k
R 403, 404	ERD25FJ562	5.6k
R 405, 406	ERD25FJ332	3.3k
R 407, 408	ERD25FJ102	1k
R 409, 410	ERD25TJ333	33k
R 411, 412	ERD25TJ823	82k
R 413, 414	ERD25FJ471	470
R 415, 416	ERD25FJ512	5.1k
R 417, 418	ERD25TJ683	68k
R 419, 420	ERD25FJ222	2.2k
R 421, 422	ERD25TJ823	82k
R 423, 424	ERD25FJ331	330
R 425, 426	ERD25FJ101	100
R 601 [E][EH] [EGA][XA] ⚠	ERDS1FVJ100	10
R 601 [EK][XL] ⚠	ERQ12AJ100	10
R 602 [E][EH] [EGA][XA] ⚠	ERDS1FVJ100	10
R 602 [EK][XL] ⚠	ERQ12AJ100	10
R 603 ⚠	ERD25FJ561	560
R 604 ⚠	ERD25FJ681	680
R 605, 606 [EK][XL] ⚠	ERQ14LKR20P	0.2
R 701, 702	ERD25FJ103	10k
R 703, 704	ERD25FJ512	5.1k
R 705, 706	ERD25TJ153	15k
R 707, 708	ERD25TJ274	270k
R 709, 710	ERD25TJ564	560k
R 711, 712, 713, 714	ERD25FJ822	8.2k
R 715	ERD25FJ103	10k
R 716	ERD25FJ271	270
R 717	ERD25FJ101	100
R 718	ERD25FJ561	560
R 719	ERD25FJ103	10k
R 720	ERD25FJ331	330
R 721	ERD25FJ471	470
R 722	ERD25FJ103	10k
R 723	ERD25FJ271	270
R 901	ERDS2TJ102	1k
R 902	ERDS2TJ683	68k
R 903	ERDS2TJ393	39k
R 904	ERDS2TJ472	4.7k
R 905, 906	ERDS2TJ102	1k
R 907	ERDS2TJ222	2.2k
R 908, 909	ERDS2TJ472	4.7k
R 910	ERDS2TJ473	47k

• CAPACITORS

Ref. No.	Part No.	Value
C 3, 4	ECEA1EU4R7	4.7
C 5, 6	ECCD1H220K	22p
C 7, 8	ECKD1H223ZF	0.022
C 9, 10	ECKD1H681KB	680p
C 11, 12	ECEA0JU101	100
C 13, 14	ECKD1H681KB	680p
C 15, 16	ECQB1H123JZ	0.012
C 17, 18	ECKD2H121KB	120p
C 19, 20	ECKD1H122KB	0.0012
C 21, 22	ECEA1HU010	1
C 23, 24	ECEA1CU100	10
C 25, 26	ECQM1H224JZ	0.22
C 27, 28	ECEA1CU100	10
C 29, 30	ECEA1HU2R2	2.2
C 31, 32	ECQB1H472JZ	0.0047
C 33, 34	ECQB1H822JZ	0.0082
C 35, 36	ECQB1H332JZ	0.0033
C 37, 38	ECEA1HU010	1
C 39, 40	ECCD1H220K	22p
C 41, 42	ECEA1AU221	220
C 45, 46	ECEA1CU100	10
C 47	ECEA1AU221	220
C 48	ECEA0JU331	330
C 49, 50	ECCD1H101K	100p
C 51	ECEA1HU010	1
C 53, 54	ECQB1H822JZ	0.0082
C 55, 56	ECKD1H223ZF	0.022
C 201	ECEA1CU102	1000
C 202	ECEA1CU100	10
C 203	ECEA1AU101	100
C 204	ECFDD822KVY	0.0082
C 205	ECEA1CU100	10
C 206	ECCD1H470K	47p
C 207	ECEA1HU010	1
C 301	ECQP1183JZ	0.018
C 302	ECFDD332KVY	0.0033
C 303	ECFDD682KVY	0.0068
C 304, 305	ECFDD222KVY	0.0022
C 306	ECEA1EU4R7	4.7
C 401, 402	ECCD1H820K	82p
C 403, 404	ECQB1H472JZ	0.0047
C 405, 406	ECEA1CU100	10
C 407, 408	ECQM1H473JZ	0.047
C 409, 410	ECQM1H224JZ	0.22
C 411, 412	ECEA50MR68R	0.68
C 413, 414	ECQB1H103JZ	0.01
C 415, 416	ECQB1H472JZ	0.0047
C 417, 418	ECEA1CU100	10
C 419, 420	ECQM1H473JZ	0.047
C 421, 422	ECQM1H224JZ	0.22
C 423, 424	ECEA50MR68R	0.68
C 601, 602 ⚠	ECKD1H102ZF	0.001
C 603, 604 ⚠	ECEA1CU221	220
C 605, 606 ⚠	ECEA1CS332	3300
C 607 ⚠	ECKD2H682PE	0.0068
C 608 ⚠	ECKDKC103PFZ	0.01
C 701, 702	ECEA1HU2R2	2.2
C 703	ECEA1EU4R7	4.7
C 704	ECEA1CU100	10
C 705	ECKD1H333ZF	0.033
C 901	ECEA0JU101	100
C 902	ECEA1HU010	1
C 903	RCBS1H221KBY	220p
C 904	ECKD1H152MD	0.0015

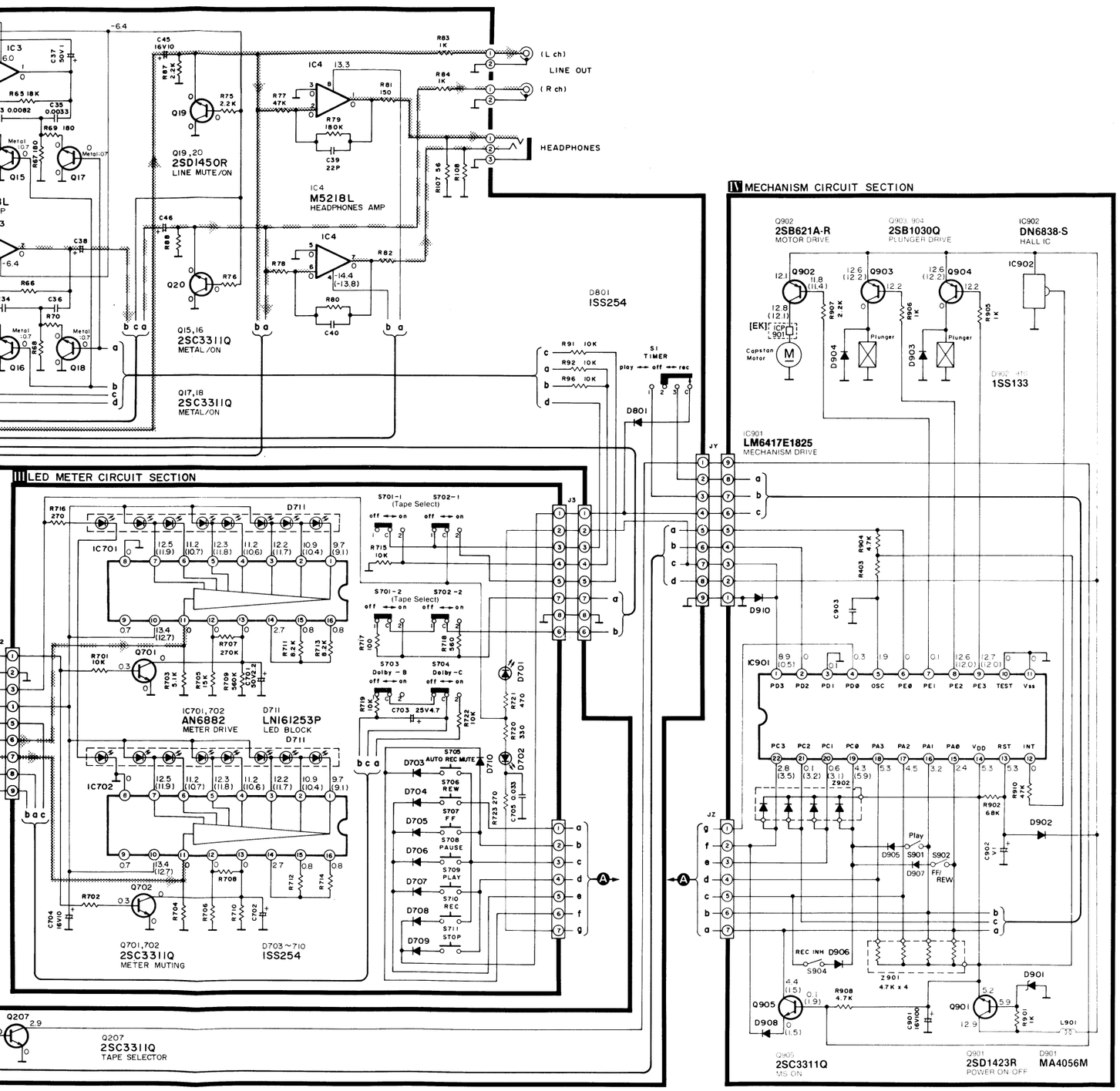
Ref. No.	Part No.	Part Name & Description
INTEGRATED CIRCUITS		
IC 1	M5218L	IC
IC 2	M5219L	IC
IC 3, 4	M5218L	IC
IC 201	M5218L	IC
IC 401, 402	TEA0665	IC
IC 701, 702	AN6882	IC
IC 901	LM6417E1825	IC
IC 902	DN6838-S	IC
TRANSISTORS		
Q 1, 2, 3	2SD1011-T	Transistor
Q 4	2SA921-T	Transistor
Q 5, 6	2SD1468R	Transistor
Q 7	2SC2603EFG	Transistor
Q 9, 10, 11, 12	2SD1468R	Transistor
Q 13, 14, 15, 16, 17, 18	2SC2603EFG	Transistor
Q 19, 20, 21, 22	2SD1468R	Transistor
Q 23, 24	2SC2603EFG	Transistor
Q 201	2SA1115E	Transistor
Q 202	2SC2603EFG	Transistor
Q 203	2SA1115E	Transistor
Q 204	2SC2603EFG	Transistor
Q 205	2SA1115E	Transistor
Q 206	2SB1030Q	Transistor
Q 207	2SC2603EFG	Transistor
Q 301, 302	2SC2603EFG	Transistor
Q 601	2SC1846-R	Transistor
Q 602	2SA885Q	Transistor
Q 701, 702	2SD1468R	Transistor
Q 901	2SD1423R	Transistor
Q 902	2SB621A-R	Transistor
Q 903, 904	2SB1030Q	Transistor
Q 905	2SC3311Q	Transistor
DIODES & RECTIFIERS		
D 1, 2	1SS254	Diode
D 201, 202, 203	1SS254	Diode
D 205, 206, 207, 208, 209, 210	1SS254	Diode
D 601	⚠ MA4180-M	Zener
D 603, 604, 605, 606, 607	⚠ SM112	Rectifier
D 702	LN31GCPHLMU	LED
D 703, 704, 705, 706, 707, 708, 709, 710	1SS254	Diode
D 711	LN161253P	LED Block
	LN440YCP	LED (Yellow)
	LN840YCP	LED (Red)
D 801	1SS254	Diode
D 901	MA4056M	Zener
D 902, 903, 904, 905, 906, 907, 908, 909, 910	1SS133	Diode
VARIABLE RESISTORS		
VR 1, 2	EWAPB1X05A54	Input Level Control
VR 3	EWAMF5X05G25	Balance Control
VR 5, 6	EVNK6AA00B24	P.B. EQ. Gain Adj.
VR 7, 8	EVNK6AA00B54	Overall Gain Adj.
VR 301, 302	EVNK6AA00B15	Bias Current Adj.
COMBINATION PARTS		
Z 901	EXBF5E472J	Combination Part
Z 902	RVDDAN401	Combination Part
IC PROTECTOR		
ICP 901 [EK]	RAHICPF20	IC Protector
COILS		
L 1, 2	QLQX0343KWA	Bias Trap Coil
L 401, 402	QLM9Z10K	MPX Coil
L 403, 404	ELM7Q306A	Skewing Network
L 901	RLQZB2R2KT-D	Coil
T 301	SLO9C19K	Bias Oscillation Coil
TRANSFORMERS		
T 1 [E][EH] [EGA]	⚠ SLT5L224S	AC Power Transformer
T 1 [EK] [XL]	⚠ SLT5L236S	AC Power Transformer
T 1 [XA]	⚠ SLT5L230S	AC Power Transformer
SWITCHES		
S 1	QSS1306H	Slide Switch (Timer)
S 601	⚠ ESB8215V	Power ON/OFF Switch
S 602	⚠ SSR227	AC Voltage Selector
S 701, 702, 703, 704	SSH3084	Push Switch (Tape Selector/NR Selector)
S 705, 706, 707, 708, 709	SSG13	Push Switch (Auto Rec Mute/FF/REW/Pause/Play)
S 710	SSG20-3	Push Switch (Rec)
S 711	SSG13	Push Switch (Stop)
S 901, 902	RSH1B12ZA-U	Leaf Switch (FF/REW/PLAY MODE)
S 904	RSH1A46ZA-U	Leaf Switch (Rec INH.)
JACKS		
J 1	SJJ127HH	Microphone Jack
J 2	SJJ126B	Headphones Jack
CONNECTORS		
CN 1	SJT30342PH	3 Pin Plug
CN 2	SJT30542PH	5 Pin Plug
CN 3	SJS5327	3 Pin Jumper Connector
CN 4	SJS5707	7 Pin Jumper Connector
CN 5	QJS1988S	9 Pin Jumper Connector
CN 6	SJS5807	8 Pin Jumper Connector
CN 7	QJT1090	Check Pin
CN 8	RJS1H1ZA	Plunger Socket

■ SCHEMATIC DIAGRAM



9 10 11 12 13 14 15 16 17 18 19

dj.



■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM

II DOLBY NR P.C.B.

I MAIN P.C.B.

IV MECHANISM P.C.B.

III LED METER

* (For [E], [XA], [EGA], [EX] mark areas)

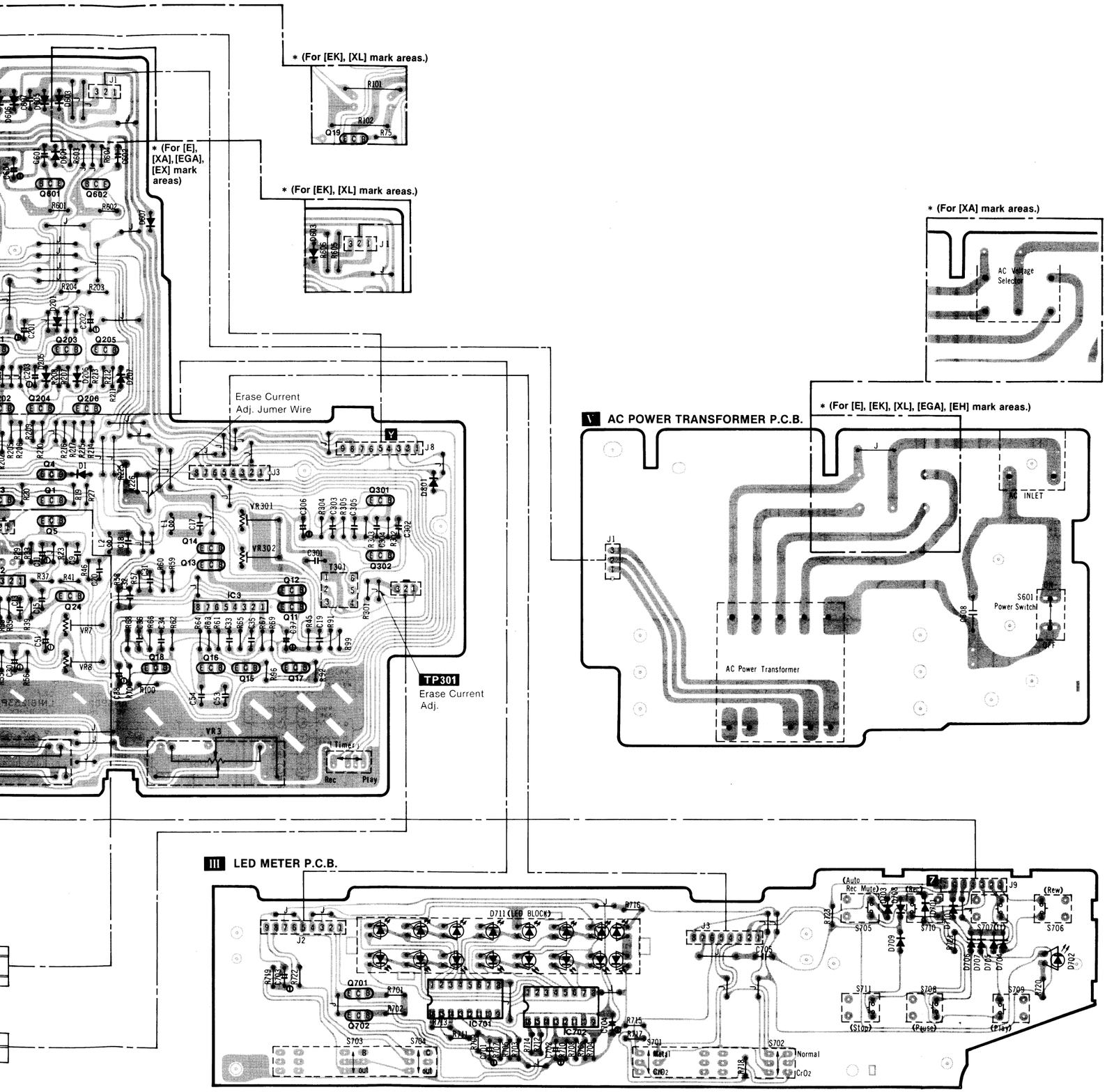
* (For [E], [XL], [XA], [EGA], [H] mark areas)

* (For [EK] mark areas)

Record/Playback Head

Erase Head

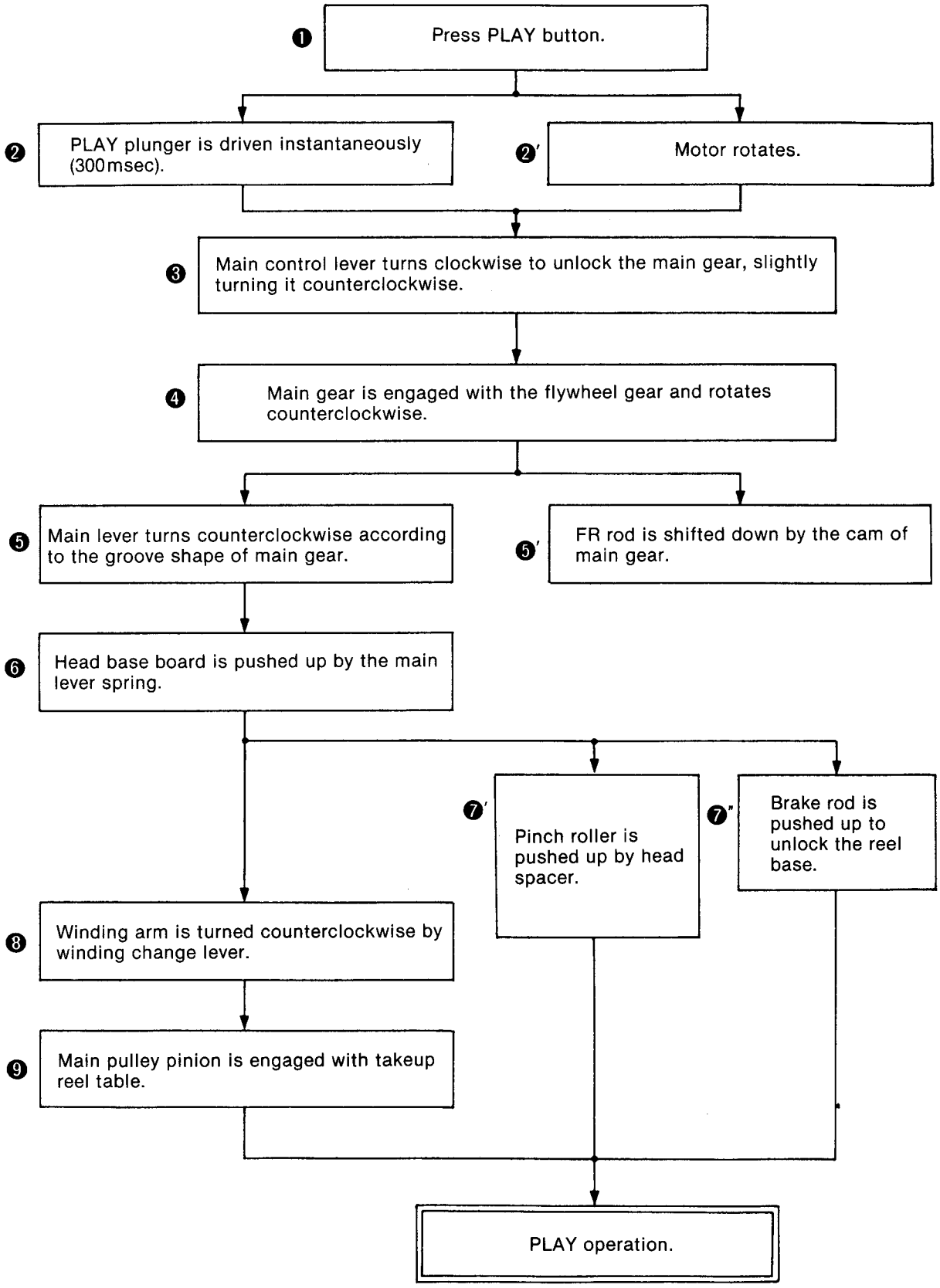
MOTOR

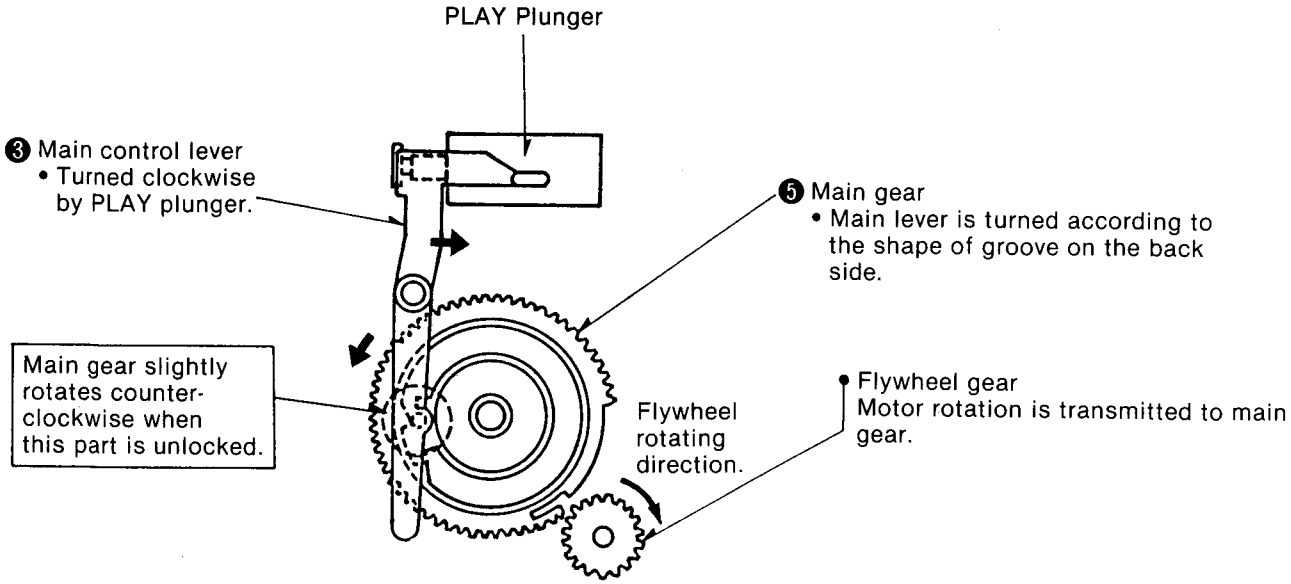

* (For [EK], [XL] mark areas.)
* (For [E], [XA], [EGA], [EX] mark areas)
* (For [EK], [XL] mark areas.)
* (For [XA] mark areas.)
AC Voltage Selector
* (For [E], [EK], [XL], [EGA], [EH] mark areas.)
AC POWER TRANSFORMER P.C.B.
AC INLET
S601 Power Switch
AC Power Transformer
Erase Current Adj. Jumer Wire
TP301 Erase Current Adj.
LED METER P.C.B.
D711 (LED BLOCK)
(Auto Rec Mute)
(Rew)
(Stop)
(Pause)
(Play)
Normal
CrO2
Metal
Timer
Rec
Play

■ TECHNICAL GUIDE (Description of mechanism operation)

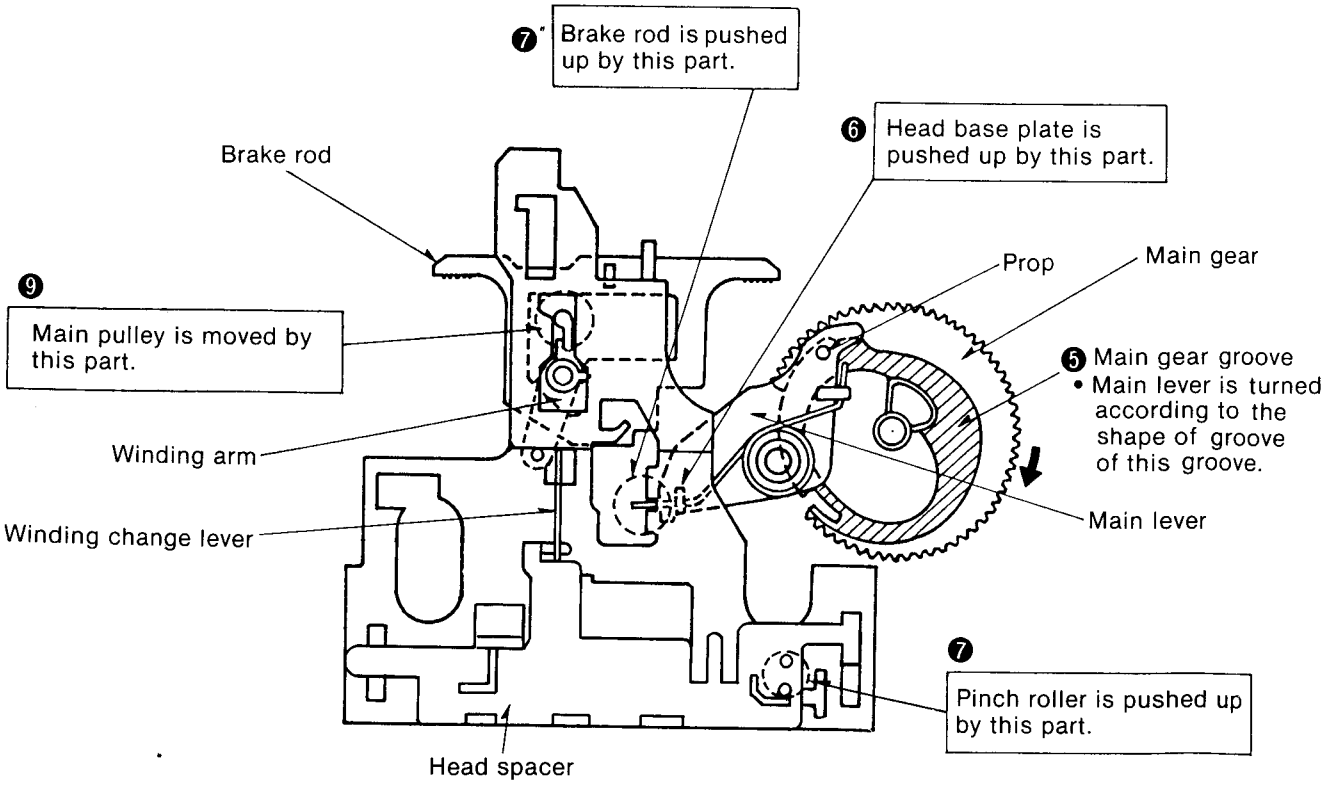
STOP → PLAY OPERATION

- Employed for this unit is the newly developed mechanism. The conventional mechanism (RS-8R series) used two motors (for capstan drive and head up/down operation), while this newly developed mechanism usess only one motor for capstan and head up/down operation. The basic operations (STOP → PLAY) of this mechanism are explained in the following. (For the mechanism operation, refer to next page.)


❶ Press PLAY button.
❷ PLAY plunger is driven instantaneously (300msec).
❷' Motor rotates.
❸ Main control lever turns clockwise to unlock the main gear, slightly turning it counterclockwise.
❹ Main gear is engaged with the flywheel gear and rotates counterclockwise.
❺ Main lever turns counterclockwise according to the groove shape of main gear.
❺' FR rod is shifted down by the cam of main gear.
❻ Head base board is pushed up by the main lever spring.
❼' Pinch roller is pushed up by head spacer.
❼" Brake rod is pushed up to unlock the reel base.
❽ Winding arm is turned counterclockwise by winding change lever.
❾ Main pulley pinion is engaged with takeup reel table.
PLAY operation.


PLAY Plunger
❸ Main control lever
• Turned clockwise by PLAY plunger.
❺ Main gear
• Main lever is turned according to the shape of groove on the back side.
Main gear slightly rotates counter-clockwise when this part is unlocked.
Flywheel rotating direction.
• Flywheel gear
Motor rotation is transmitted to main gear.

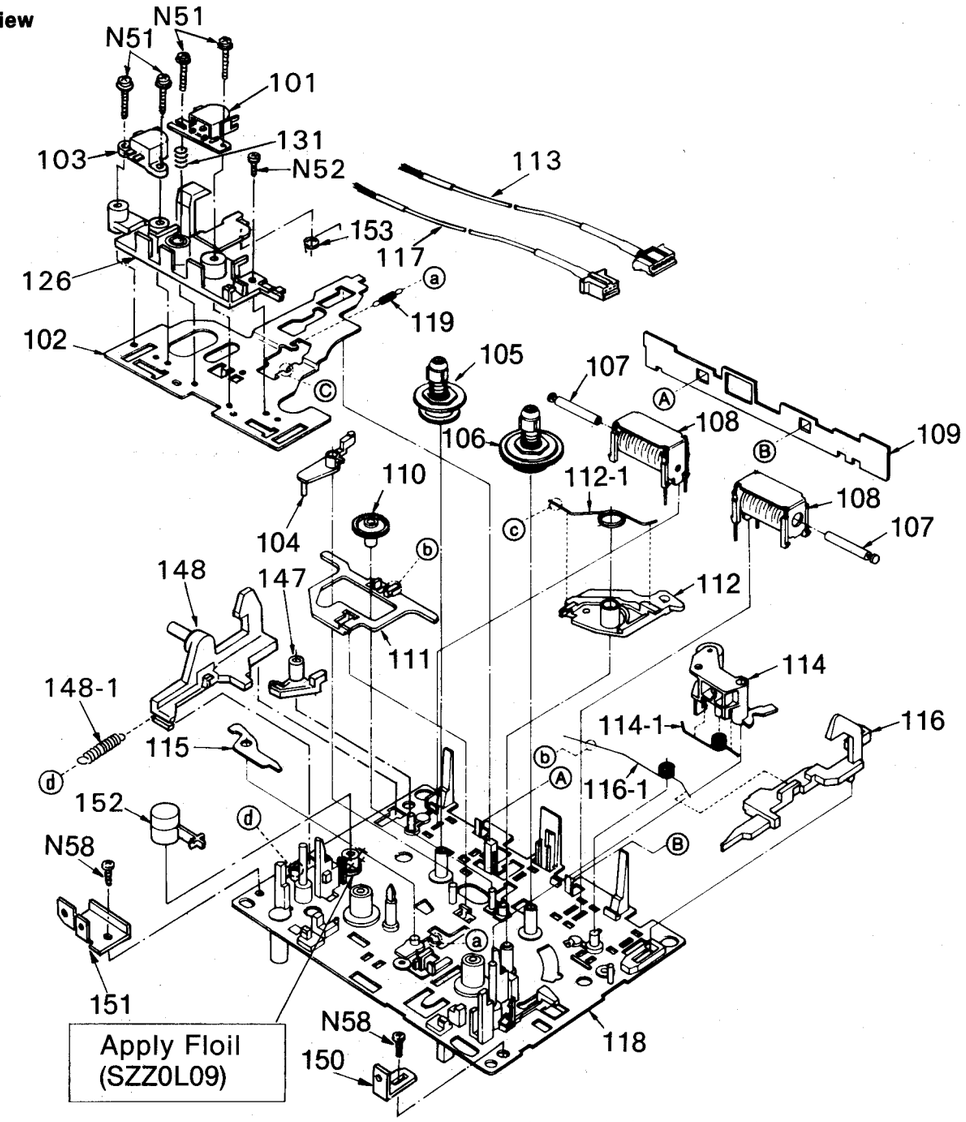
[Back view of mechanism in STOP mode.]


❼' Brake rod is pushed up by this part.
❻ Head base plate is pushed up by this part.
Brake rod
Prop
Main gear
❾
Main pulley is moved by this part.
❺ Main gear groove
• Main lever is turned according to the shape of groove of this groove.
Winding arm
Winding change lever
Main lever
❼
Pinch roller is pushed up by this part.
Head spacer

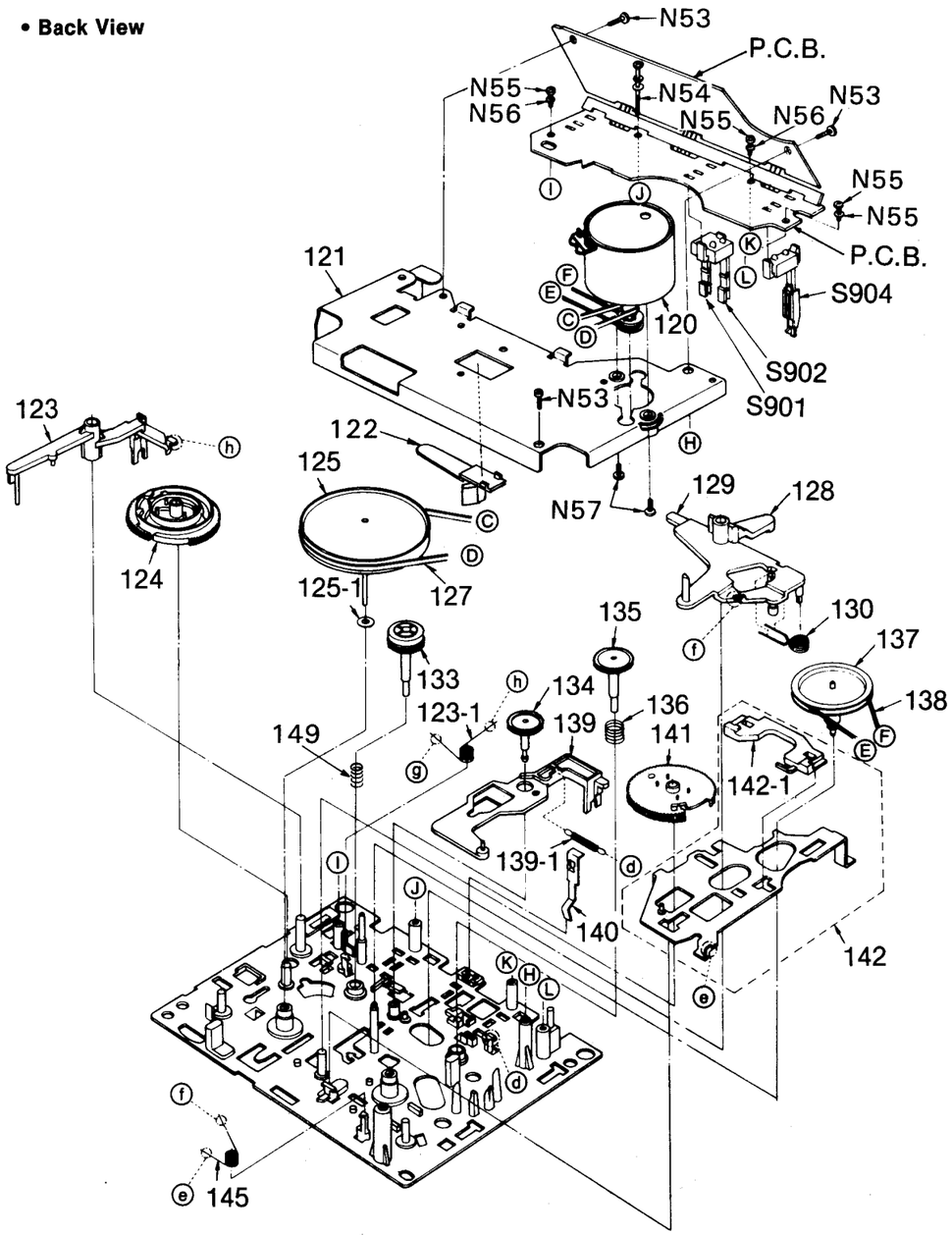
[Front view of mechanism in STOP mode.]

■ MECHANICAL PARTS LOCATION

• **Front View**



• **Back View**



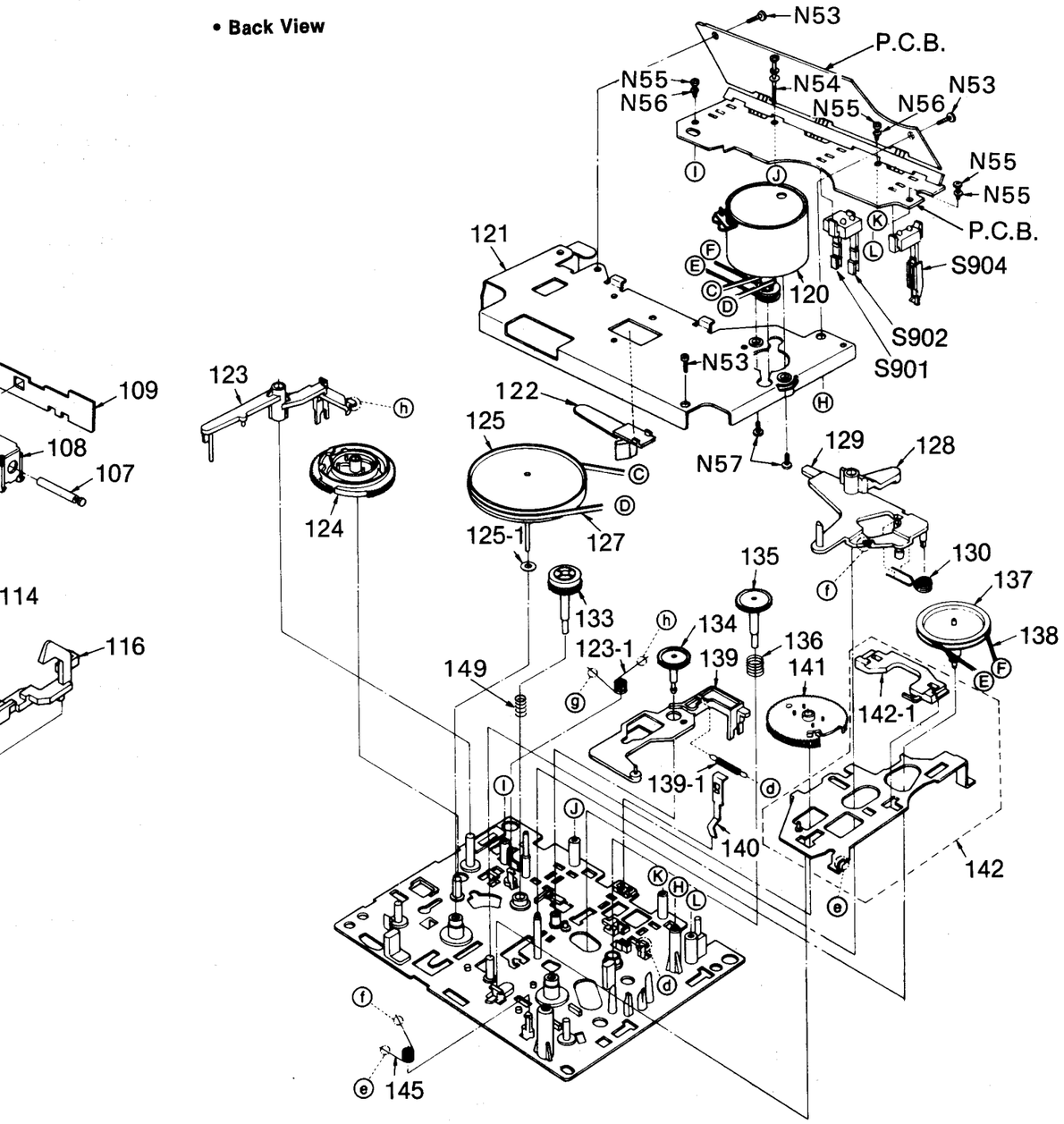
NOTES:

- When changing mechanism parts, apply the specified grease to the area marked "xx" shown in the drawing "Mechanical Parts Location".
- The grease and/or oil shown in the parentheses function to prevent friction (lubrication).

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description
MECHANISM PARTS		
101	QWY4165G	Record/Playback Head
102	RUA9029Y	Head Base Plate
103	QWY2138G	Erase Head
104	RUB347Z	Take Up Change Arm
105	RDMG0011Z	Supply Reel Table (F) Ass'y
106	RDMG0001Z	Take Up Reel Table (R) Ass'y
107	RUB358Z	Shaft
108	RUEG0001Z	Plunger Ass'y
109	RUB344Z	Switch Lever
110	RDG5772Z	Take Up Relay Gear
111	RUB353Z	Brake Rod
112	RUBG0001Z	Main Lever Ass'y
112-1	RUW14Z	Main Lever Spring
113	RJSG0005Z	R/P Head Lead Wire
114	RUBG0006Z	Pinch Roller (F) Ass'y
114-1	RUW12Z	Pinch Roller Spring
115	RUB343Z	Cue Lever
116	RNR2Z	Eject Rod
116-1	RUW48Z	Eject Rod Spring
117	RJSG0006Z	E Head Lead Wire
118	RUAG0001Z	Mecha Chassis
119	RUD9Z	Head Base Plate Return Spring
120	RJQG0001Z	DC Motor Ass'y
121	RUL734Z	Flywheel, Bracket
122	RMD5004Z	Spacer
123	RUB350Z	Main Control Lever
123-1	RUW10Z	Main Control Lever Spring
124	RNG1Z	Main, Gear
125	RDWG0003Z	Flywheel (F) Ass'y
125-1	QBW2123	Washer (φ2.5)
126	RMD5006Z	Head Speser
127	RDV37Z	Main, Belt (Flat)
128	RUB346Z	FF Arm
129	RUB348Z	FF Spring Lever
130	RUW9Z	FF Arm Spring
131	SBC1278A	Spring
133	RDGG0003Z	Reel Table Gear Ass'y
134	RDG5773Z	FF Relay Gear
135	RDG5769Z	Reel Table Gear
136	RUQ10Z	Backtension Spring
137	RDRG0001Z	Main Pulley Ass'y
138	RDV27Z	FF, Belt (Square)
139	RUB349Z	Sub Control Lever
139-1	RUD8Z	Sub Control Lever Spring
140	RUS609Z	Tape Pressure Spring
141	RDG5775Z	Sub, Gear
142	RUBG0004Z	FF Rod Ass'y
142-1	RUB345Z	FR Selecte Rod
145	RUW8Z	FF Rod Spring
147	RNL3ZA	Eject Arm
148	RNR1Z	Eject Rod
148-1	RUD22Z	Eject Rod Spring
149	RUQ30ZA	Backtension Spring
150	SMN1972	Mecha Angle (R)
151	SMN1973	Mecha Angle (L)
152	RNL1Z	Damper Arm
153	RUW45Z	Takeup Arm Spring
SCREWS, NUTS & WASHERS		
N 51	QHQ1361A	Screw ⊕2×8
N 53	XTN26+6B	Screw ⊕2.6×6
N 54	XYC2+FF15	Screw ⊕2×15
N 55	XTN2+5B	Screw ⊕2×5
N 56	XWG2	Washer 2φ
N 57	XSN26+3	Screw ⊕2.6×3
N 58	XTN4+6B	Screw ⊕4×6

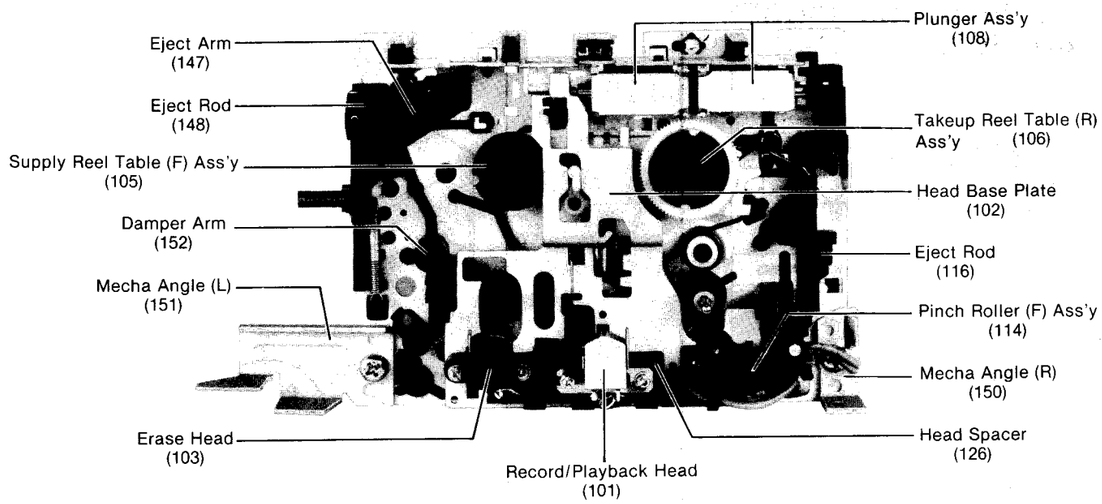
• **Back View**

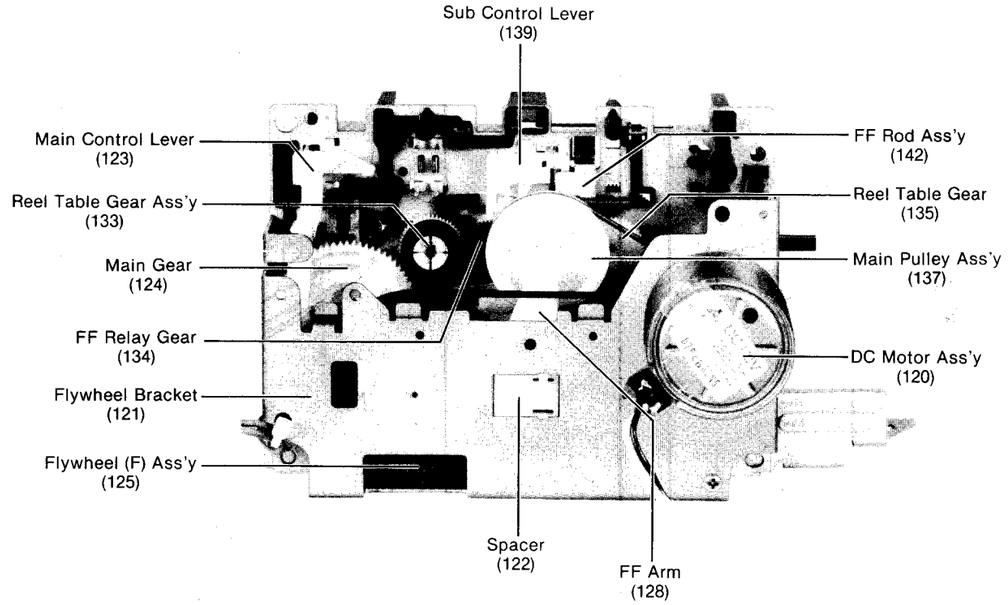


Ref. No.	Part No.	Part Name & Description
		Head Base Plate Return Spring
1Z		DC Motor Ass'y
		Flywheel, Bracket
Z		Spacer
		Main Control Lever
		Main Control Lever Spring
		Main, Gear
3Z		Flywheel (F) Ass'y
		Washer (φ2.5)
Z		Head Speser
		Main, Belt (Flat)
128	RUB346Z	FF Arm
129	RUB348Z	FF Spring Lever
130	RUW9Z	FF Arm Spring
131	SBC1278A	Spring
133	RDGG0003Z	Reel Table Gear Ass'y
134	RDG5773Z	FF Relay Gear
135	RDG5769Z	Reel Table Gear
136	RUQ10Z	Backtension Spring
137	RDRG0001Z	Main Pulley Ass'y
138	RDV27Z	FF, Belt (Square)
139	RUB349Z	Sub Control Lever
139-1	RUD8Z	Sub Control Lever Spring
140	RUS609Z	Tape Pressure Spring
141	RDG5775Z	Sub, Gear
142	RUBG0004Z	FF Rod Ass'y
142-1	RUB345Z	FR Selecte Rod
145	RUW8Z	FF Rod Spring
147	RNL3ZA	Eject Arm
148	RNR1Z	Eject Rod
148-1	RUD22Z	Eject Rod Spring
149	RUQ30ZA	Backtension Spring
150	SMN1972	Mecha Angle (R)
151	SMN1973	Mecha Angle (L)
152	RNL1Z	Damper Arm
153	RUW45Z	Takeup Arm Spring

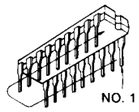
SCREWS, NUTS & WASHERS

N 51	QHQ1361A	Screw ⊕2×8
N 53	XTN26+6B	Screw ⊕2.6×6
N 54	XYC2+FF15	Screw ⊕2×15
N 55	XTN2+5B	Screw ⊕2×5
N 56	XWG2	Washer 2φ
N 57	XSN26+3	Screw ⊕2.6×3
N 58	XTN4+6B	Screw ⊕4×6

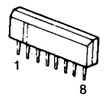
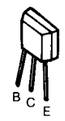
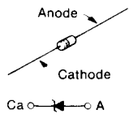
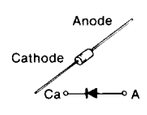
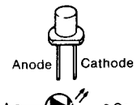
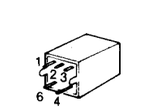
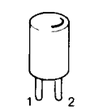
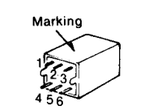


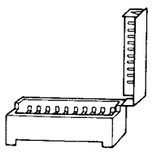


■ TERMINAL GUIDE OF TRANSISTORS, DIODES AND IC'S



AN6882	16 Pin
LM6417E1825	22 Pin
TEA0665	28 Pin

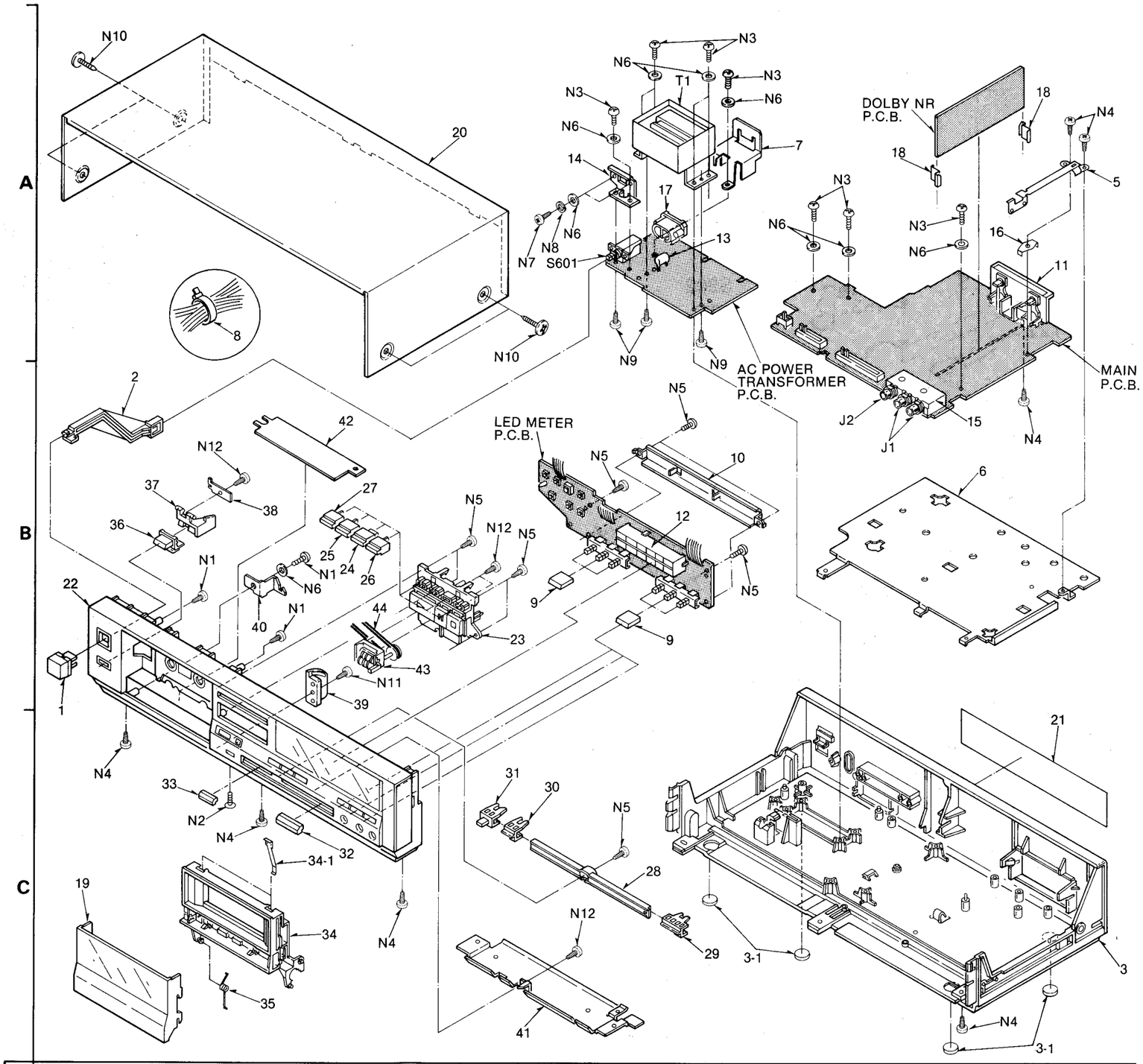
M5218L, M5219L	2SC1846R, 2SA885Q
	
	2SB1030Q, 2SA1115E, 2SC2603EFG, 2SD1011T, 2SA921T, 2SD1468R
MA4180M	1SS254, SM112
	
LN31GCPHLMU	ELM7Q306A, QLM9Z10K
	
QLQX0343KWA	SLO9C19K
	



3 Pin	CN3	SJS5327
7 Pin	CN4	SJS5707
8 Pin	CN6	SJS5807
9 Pin	CN5	QJS1988S

QJT1090

■ CABINET PARTS LOCATION



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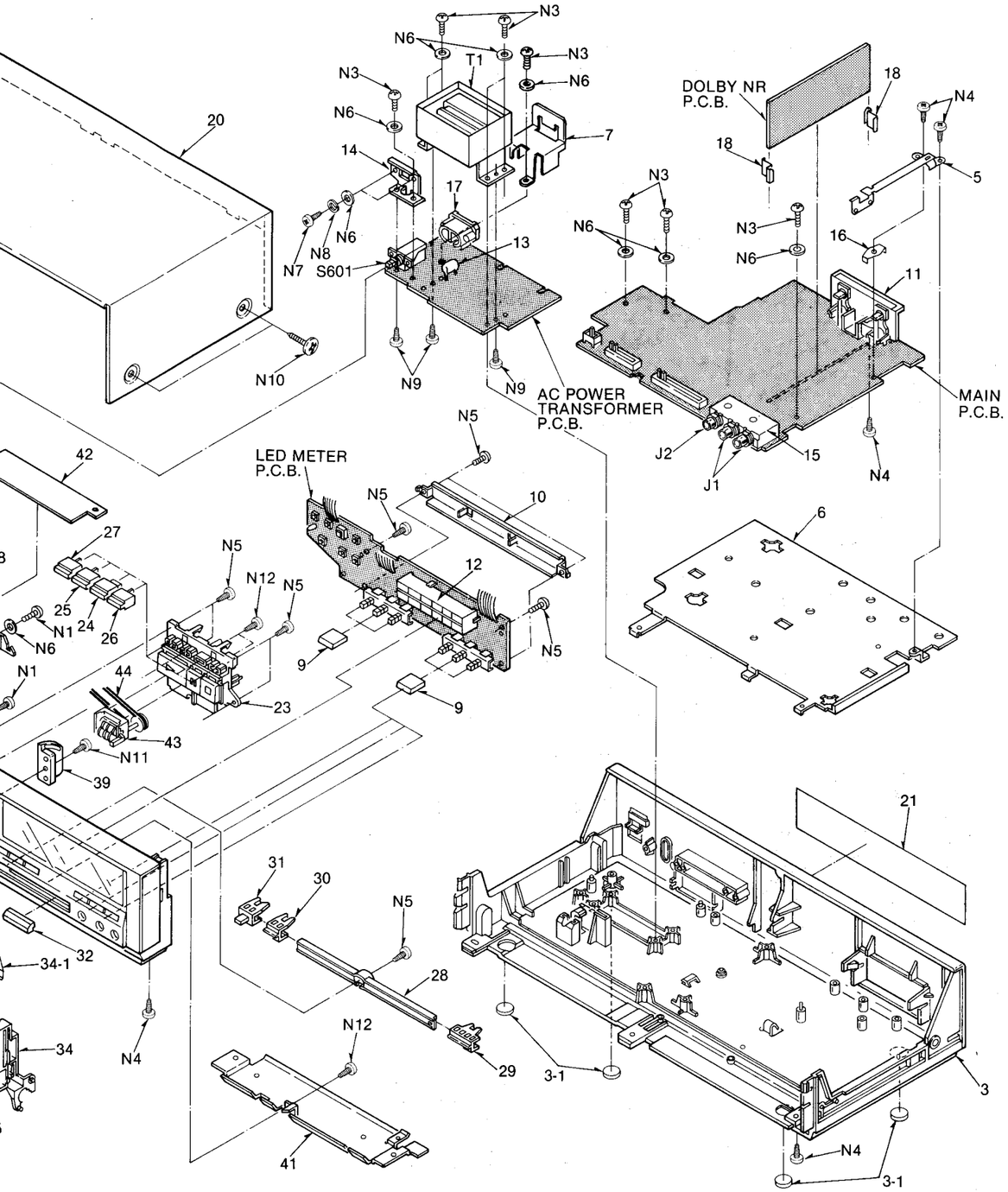
N3
N6
T1
N3
N3
N6
N6
14
17
N8
N6
N7
S601
13
20
N10
N9
N9
DOLBY NR
P.C.B.
18
18
N4
5
N3
N6
N3
N6
16
11
AC POWER
TRANSFORMER
P.C.B.
MAIN
P.C.B.
J2
J1
15
N4
N5
LED METER
P.C.B.
N5
10
6
42
27
N5
N12
N5
12
25
24
26
N1
N6
N1
9
44
23
9
43
N11
39
N5
N5
21
31
30
N5
28
34-1
32
34
N4
N12
29
3-1
3
41
N4
3-1

| | | |

ORDER NO. HAD85042533C8-A

Cassette Deck

DEUTSCH

Verwenden Sie bitte diese Broschüre Zusammen mit der Service-Anieitung für das Modell Nr. RS-B25.

■ TECHNISCHE DATEN

System	Stereo-Cassettendeck
Spuren	4 Spuren, 2 Kanäle
Tonköpfe	
Aufnahme/Wiedergabe	MX-Kopf
Löschen	Ferrit-Kopf mit Doppelspalt
Motor	1-Motor
Aufnahmesystem	Wechselstrom-Vormagnetisierung
Vormagnetisier ungsfrequenz	80kHz
Löschsystem	Wechselstrom-Vormagnetisierung
Bandgesch windigkeit	4,8cm/s
Frequenzgang	
Reineisenbänder	20Hz∼17.000Hz
	30Hz∼17.000Hz (DIN)
	40Hz∼16.000Hz±3dB
CrO_2-Bänder	20Hz∼17.000Hz
	30Hz∼16.000Hz (DIN)
	40Hz∼15.000Hz±3dB
Normalbänder	20Hz∼16.000Hz
	30Hz∼15.000Hz (DIN)
	40Hz∼14.000Hz±3dB

Geräuschspannungsabstand:	
(Signalpegel = max. Aussteuerungspegel, CrO_2-Band)	
mit Dolby C-Rauschunterdrückung	75dB (CCIR)
mit Dolby-B-Rauschunterdrückung	67dB (CCIR)
ohne Rauschunterdrückung	57dB (nach A bewertet)
Gleichlauschwankungen	0,07% (WRMS)
	±0,13% (DIN)
Umspulzeit	ca. 90 s für C-60-Cassette
Eingangsempfindlichkeit und Impedanz	
MIC	0,25mV/400Ω∼10kΩ
LINE	60mV/47kΩ
Ausgangsspannung und Impedanz	
LINE	400mV/1,5kΩ
HEADPHONES	80mV/8Ω
Stromaufnahme	16W
Stromversorgung	
Netz 50Hz/60Hz, 220V für Europa ohne England.	
Abmessungen (B×H×T)	430×99,5×229mm
Gewicht	3,4kg

■ MESSUNGEN UND EINSTELL METHODEN

Anm.: Wenn nicht anders vorgeschrieben, Drehschalter und Steuereinrichtungen auf die folgenden Positionen stellen.

- Für saubere Köpfe sorgen.
- Für saubere Tonwelle und Andruckrolle sorgen.
- Auf normale Raumtemperatur achten: 20±5°C (68±9°F)
- Dolby-Schalter: AUS
- Abgleichkontrolle: Mitte (Zentrum)
- Eingangsregler: MAX

Ⓐ Senkrechtstellen des Kopfes

Bedingung:
- Wiedergabe
- Betriebsart: Normalband

Meßgerät:
- Elektronische Voltmeter
- Oszillograph
- Testband (azimuth)...QZZCFM

Ausgangsbalance-Justierung für linken und rechten Kanal

1. Den Meßaufbau zeigt Fig. 2.

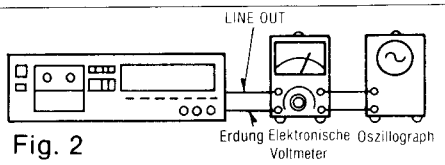

Fig. 2

2. 8kHz-Signal des Testbandes (QZZCFM) wiedergeben. Schraube (B) in Fig. 3 auf maximalen Ausgangspegel des linken und rechten Kanals abgleichen. Sind die Ausgangspegel des linken und rechten Kanals nicht gleichzeitig maximal, wie folgt justieren:
3. Durch Drehen der in Fig. 3 gezeigten Schraube (B) die Winkel A und C (Punkte, wo Spitzenausgangspegel für den linken und rechten Kanal erreicht werden) ermitteln. Anschließend den Winkel B zwischen dem Winkel A und C ermitteln, d.h. den Punkt, wo die Ausgangspegel des linken und rechten Kanals ausbalanciert (ausgeglichen) sind. (Siehe Fig. 3 und 4.)

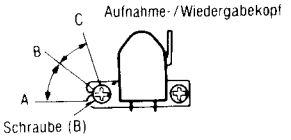

Fig. 3

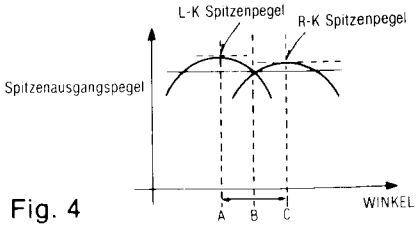

Fig. 4

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Phasenjustierung für linken und rechten Kanal

4. Den Meßaufbau zeigt Fig. 5.
5. 8kHz-Signal des Testbandes (QZZCFM) wiedergeben. Schraube (B), wie in Fig. 3 gezeigt, so einstellen, daß Zeiger von zwei Röhrenvoltmeter auf Maximum ausschlagen und am Oszillographen eine Wellenform wie in Fig. 6 erreicht wird.

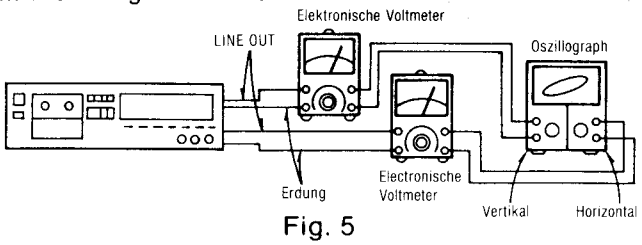

Fig. 5

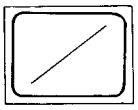

Fig. 6

Ⓑ Bandgeschwindigkeit

Bedingung:
- Wiedergabe
- Betriebsart: Normal band

Meßgerät:
- Elektronischer Digitalzähler
- Testband...QZZCWAT

Genauigkeit der Bandgeschwindigkeit

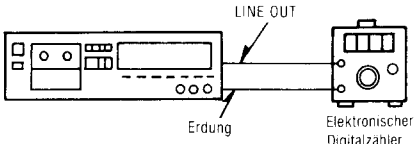

Fig. 7

1. Den Meßaufbau zeigt Fig. 7.
2. Testband (QZZCWAT 3000Hz) wiedergeben und Ausgangssignal dem Zähler zuführen.
3. Frequenz messen.
4. Beträgt die auf dem Testband aufgezeichnete Frequenz 3000Hz, so ergibt sich die Genauigkeit nach folgender Formel:

$$\text{Genauigkeit der Bandgeschwindigkeit} = \frac{f-3000}{3000} \times 100(\%)$$

worin f die gemessene Frequenz ist.

5. Die Messung soll im mittleren Teil des Bandes erfolgen.

NORMALWERT: 0,33% (3000±10Hz)

6. Falls der Meßwert nicht im vorgeschriebenen Bereich liegt, bitte mit Bandgeschwindigkeitsregler VR wie in Fig. 1 gezeigt einstellen.

Anmerkung: Bitte bei dieser Einheit zum Justieren der Bandgeschwindigkeit keinen Metallschraubenzieher benutzen.

Schwankung der Bandgeschwindigkeit:

Messung, wie oben beschrieben für Anfang, mittleren Teil und Ende des Testbandes wiederholen und Schwankung wie folgt bestimmen:

$$\text{Schwankung} = \frac{f_1-f_2}{3000} \times 100(\%)$$

f_1 = Maximalwert
f_2 = Minimalwert

NORMALWERT: 1%

Ⓒ Frequenzgang bei Wiedergabe

Bedingung:
- Wiedergabe
- Betriebsart: Normalband

Meßgerät:
- Elektronische Voltmeter
- Oszillograph
- Testband...QZZCFM

1. Den Meßaufbau zeigt Fig. 2.
2. Gerät auf Wiedergabe schalten. Frequenzgang-Testband QZZCFM wiedergeben.
3. Ausgangsspannung bei 315Hz, 12,5kHz, 8kHz, 1kHz, 250Hz, 125Hz und 63Hz messen und jede Ausgangsspannung mit der Standardfrequenz 315Hz an der LINE OUT vergleichen.
4. Messungen an beiden Kanälen durchführen.
5. Prüfen, ob die gemessenen Werte innerhalb des in der Frequenzgang-Übersicht aufgeführten Bereichs liegen. (Siehe Fig. 8.)

Wiedergabe-Frequenzgangsdiagramm

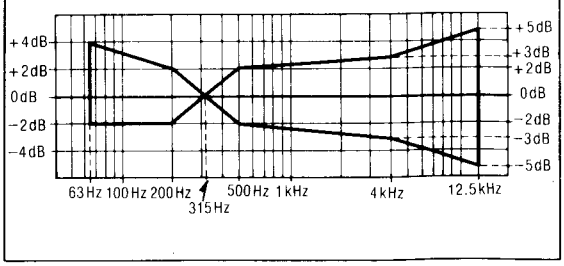

Fig. 8

Ⓓ Wiedergabe-Verstärkung

Bedingung:
- Wiedergabe
- Betriebsart: Normalband

Meßgerät:
- Elektronische Voltmeter
- Oszillograph
- Testband...QZZCFM

1. Den meßaufbau zeigt Fig. 2.
2. Den Standard-Aufnahmepegelteil der Testbandcassette (QZZCFM, 315Hz) wiedergeben und mit dem Elektronische Voltmeter den Ausgangspegel an den LINE OUT-Anschlüssen messen.
3. Messung an beiden Kanälen durchführen.

NORMALWERT: 0,4V±0,05V

Einstellung:

1. Abweichungen können durch Abgleich von VR5 (linker Kanal) und VR6 (rechter Kanal), korrigiert werden. (S. Fig. 1).
2. Nach erfolgtem Abgleich ist der Frequenzgang bei Wiedergabe erneut zu kontrollieren.

Ⓔ Löschstrom

Bedingung:
- Aufnahme
- Betriebsart: Metallband

Meßgerät:
- Elektronische Voltmeter
- Oszillograph

1. Den Meßaufbau zeigt Fig. 9.
2. Die Aufnahme-und Pausentaste drücken.
3. Den Bandwahlschalter auf Metallband-Position stellen.
4. Löschstrom nach folgender Formel emitteln:

$$\text{Löschstrom (A)} = \frac{\text{Die Spannung über beide Enden von R301}}{\text{1 (Ohm)}}$$

NORMALWERT: 155±15mA (Metal position) (155±15mV)

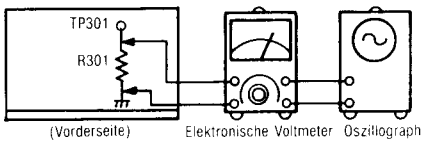

Fig. 9

5. Falls der Meßwert nicht im vorgeschriebenen Bereich liegt, auf folgenden Weise einstellen.

Einstellung:

- Beträgt der Löschstrom mehr als 170mA, unterbrechen Sie den Schaltdraht.

Ⓕ Gesamtfrequenzgang

Bedingung:
- Aufnahme und Wiedergabe
- Betriebsart "Normalband"
- Betriebsart "CrO_2 Band"
- Betriebsart "Metallband"
- Eingangsregler...MAX

Meßgerät:
- Elektronische Voltmeter
- NF-Generator
- Abschwächer
- Oszillograph
- Testband (Leerband)
  ...QZZCRA für Normal
  ...QZZCRX für CrO_2
  ...QZZCRZ für Metall
- Widerstand (600Ω)

Anm.:

Vor Messung und Abgleich des Gesamtfrequenzganges ist sicherzustellen, daß der Frequenzgang bei Wiedergabe korrekt ist (Vgl. entspr. Abschnitt).

Gesamtfrequenzgang-Justierung durch Aufnahme-Vomagnetisierungsstrom

(Der Aufnahme-Entzerrer ist fest eingestellt.)

1. Den Meßaufbau zeigt Fig. 11.
2. Gerät auf Betriebsart "Normalband" schalten, und Testband (QZZCRA) einlegen.
3. An LINE IN ein Signal von 1kHz, −24dB zuführen. Das Gerät auf Aufnahme schalten.
4. Den Dämpfungswiderstand feineinstellen, bis die Ausgangsleistung an LINE OUT 0,4V beträgt.
   - Überprüfen, daß der Signalausgangspegel bei einer Ausgangs-Spannung von 0,4V −24±4dB beträgt.
5. Mit dem NF-Oszillator Signale von 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz und 10kHz zuführen, und diese Signale auf das Testband aufzeichnen.

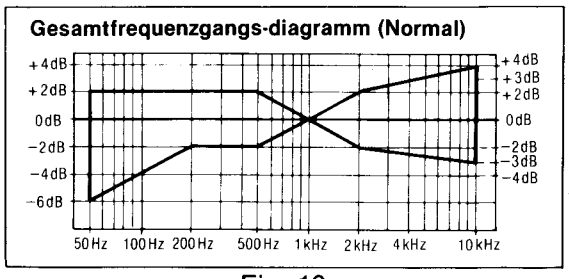

Fig. 10

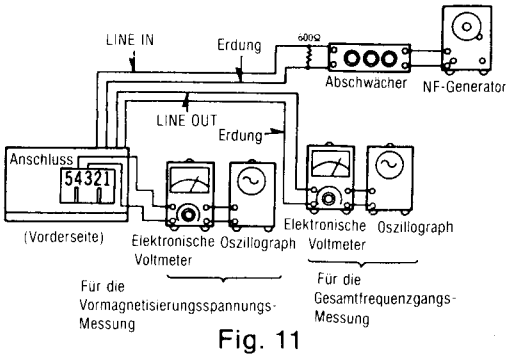

Fig. 11

DEUTSCH

6. Die in Schritt 5 aufgezeichneten Signale wiedergeben und überprüfen, ob die Frequenzgangkurve innerhalb des Bereichs liegt, der im Frequenzgangdiagramm für normales Band in Fig. 10 gezeigt ist. (Falls die Kurve innerhalb des vorgeschriebenen Bereichs liegt, mit den Schritten 7, 8 und 9 weiterfahren.)
   Falls die Kurve außerthalb des vorgeschriebenen Bereichs liegt, wie folgt justieren.

Justierung (A):

Wenn die Kurve den vorgeschriebenen Gesamtfrequenzgangbereich (Fig. 10) überschreitet, wie in Fig. 12 gezeigt.

1) Den Votmagnetisierungsstrom durch Abgleichen von VR301 (linker Kanal) und VR302 (rechter Kanal) erhöhen.

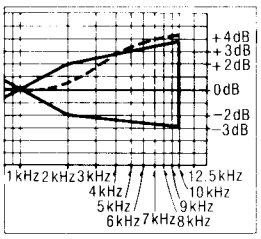

Fig. 12

2) Die Schritte 5 und 6 zur Überprüfung wiederholen. (Wenn die Kurve dabei innerhalb des vorgeschriebenen Bereichs liegt (Fig. 10) mit den Schritten 7, 8, und 9 weiterfahren.)
3) Wenn die Kurve den vorgeschriebenen Bereich (Fig. 10) noch immer überschreitet, den Vormagnetisierungsstrom weiter erhöhen, und die Schritte 5 und 6 wiederholen.

Justierung (B):

Wenn die Kurve unter den vorgeschriebenen Bereich für den Gesamtfrequenzgang (Fig. 10) absinkt, wie in Fig. 13 gezeigt:

1) Den Vormagnetisierungsstrom durch abgleichen von VR301 (linker Kanal) und VR302 (rechter Kanal) reduzieren.

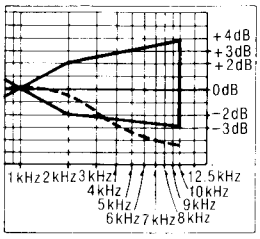

Fig. 13

2) Die Schritte 5 und 6 zur Überprüfung wiederholen. (Falls die Kurve dabei innerhalb des vorgeschriebenen Bereichs in Fig. 10 liegt, mit den Schritten 7, 8, und 9 weiterfahren.)
3) Falls die Kurve noch immer unter den vorgeschriebenen Bereich (Fig. 10) absinkt, den Vormagnetisierungsstrom weiter reduzieren, und Schritte 5 und 6 wiederholen.

7. Gerät auf Betriebsart "CrO_2 Band" schalten.
8. Testband QZZCRX einlegen, und Signale von 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz und 12,5kHz aufzeichnen; Anschliessend die Signale wiedergeben und prüfen, ob die Kurve innerhalb des Bereichs liegt, der im Gesammtfrequenzgang-Diagramm für das CrO_2 Band dargestellt ist. (Fig. 14.)
9. Gerät auf Betriebsart "Metallband" schalten. Testband QZZCRZ einlegen und Signale von 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz und 12,5kHz aufnehmen. Anschließend die Signale wiedergeben und prüfen, ob die Kurve innerhalb des Bereichs im Gesamtfrequenzgangdiagramm für Metallband liegt. (Fig. 14.)
10. Überprüfen, daß die Vorspannung ungefähr den folgenden Werten entsprechen, wenn der Bandsortenschalter in die entsprechende Position gestellt ist.
    • Messen Sie die Spannung über dem Kopf mit einem Röhren voltmeter.

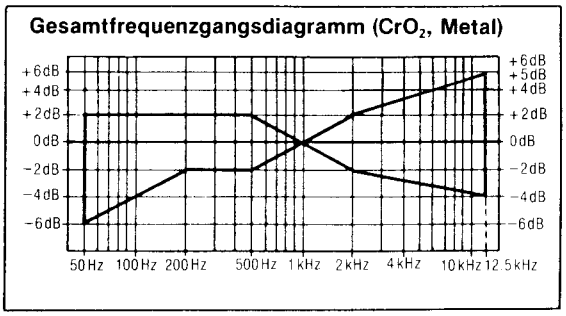

Fig. 14

Bezugswert:	**Ungefähr 7,7V (Normal position)** **Ungefähr 13,3V (CrO_2 position)** **Ungefähr 18,3V (Metall position)**

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Bedingung:
- Aufnahme und Wiedergabe
- Betriebsart: Normalband
- Eingangsregler: MAX
- Standard-Eingangspegel:

  Mikrofon .....-72^{+5}_{-3}dB (0,25mV)

NF-Eingang ...-24 ± 4dB (63mV)

Meßgerät:
- Elektronische Voltmeter
- NF-Generator
- Abschwächer
- Oszillograph
- Widerstand (600Ω)
- Testband (Leerband)
  ...QZZCRA für Normal

1. Den Meßaufbau zeigt Fig. 15.
2. Normales Testleerband (QZZCRA) einlegen.
3. Gerät auf "Aufnahme" schalten.
4. Über den Abschwächer ein 1kHz-Signal (−24dB) vom NF-Generator dem NF-Eingang zuführen.
5. ATT justieren, bis der Monitorpegel an den LINE OUT-Anschlüssen 0,4V beträgt.
6. Eine bespielte Cassette wiedergeben und überprüfen, ob der Ausgangspegel an den LINE OUT-Anschlüssen 0,4V beträgt.
7. Wenn der gemessene Wert nicht 0,4V erreicht, die folgenden VR abgleichen: VR7 (L-K) oder VR8 (R-K).
8. Ab Punkt 2 wiederholen.

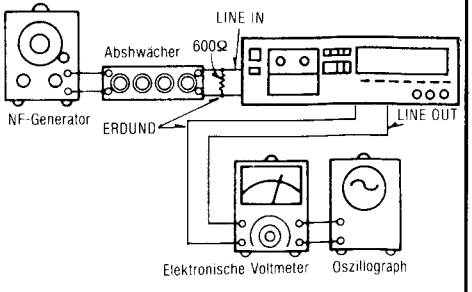

Fig. 15

⓭ Fluoreszenzmeter

Bedingung:
- Aufnahme
- Eingangsregler...MAX.

Meßgerät:
- Elektronische Voltmeter
- NF-Generator
- Abschwächer
- Oszillograph
- Widerstand (600Ω)

1. Der Anschluß des Prüfgerätes wird in Fig. 15 gezeigt.
2. Die Einheit auf Aufnahmestellung schalten.
3. Ein 1kHz Signal (−24dB) vom AF Oszillator durch "ATT" auf "LINE IN" goben.
4. ATT so justieren, daß an "LINE OUT" 0,4V anliegen.
5. Versichern Sie sich, ob die Pegelanzeige LED "0" aufleuchtet sobald 0,4V±0,05V auf "LINE OUT" gegeben werden.

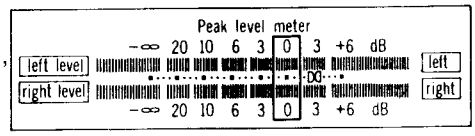

Fig. 16

⓮ Dolby-Schaltung

Bedingung:
- Aufnahme
- Dolby-Schalter ...IN/OUT (AN/AUS)
- Dolby-Wahlschalter ...B/C
- Eingangsregler...MAX.

Meßgerät:
- Elektronische Voltmeter
- NF-Generator
- Abschwächer
- Oszillograph
- Widerstand (600Ω)

Aufnahmeseite

- Überprüfung der Dolby-B-Type Verschlüsselungsmerkmale.

1. Den Meßaufbau zeigt Fig. 17.
2. Gerät auf "Aufnahme" stellen. (Dolby-Wahlschalter ist OUT (AUS).)
3. Dem NF-Eingang ein 1kHz-Signal zuführen.
4. Abschwächer so abstimmen, daß die Ausgangsspannung an Nadel 7 von IC401 (L-K) und IC402 (R-K) 12,3mV beträgt.
5. Die Ausgangsspannung an Nadel 21 sollte 0dB betragen (375mV).
6. Den Dolby-Wahlschalter auf B stellen. Sicherstellen, daß das Ausgangssignalpegel an Nadel 21 von IC401 (L-K) und IC402 (R-K) +6dB±1,5dB beträgt (753mV).
7. Dolby-Wahlschalter ausschalten und die Frequenz auf 5kHz abstimmen. Das Ausgangssignal an Nadel 21 sollte 0dB betragen (375mV).
8. Dolby-Wahlschalter auf B stellen und sicherstellen, daß das Ausgangssignalpegel an Nadel 21 von IC401 (L-K) und IC402 (R-K) +8dB±1,5dB beträgt (948mV).

- Überprüfung der Dolby-C-Typ Verschlüsselungsmerkmale

9. Obige Stufen 1 bis 5 wiederholen.
10. Dolby-Wahlschalter auf C stellen und sicherstellen, daß das Ausgangssignalpegel an Nadel 21 von IC401 (L-K) und IC402 (R-K) +11,5dB±2dB beträgt (1,4V).
11. Dolby-Wahlschalter ausschalten und die Frequenz auf 5kHz abstimmen.
    Die Ausgangsspannung an Nadel 21 sollte 0dB sen (375mV).
12. Dolby-Wahlschalter auf C stellen und sicherstellen, daß das Ausgangssignalpegel an Nadel 21 von IC401 (L-K) und IC402 (R-K) +8,5dB±2dB beträgt (1V).

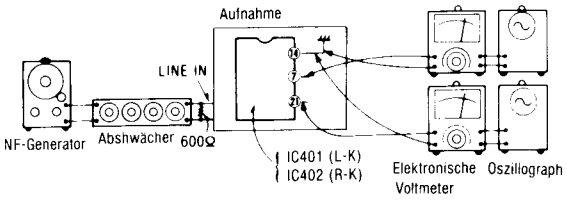

Fig. 17

FRANÇAIS

Ceci est à utiliser conjointement avec le manuel d'entretien du modèle No. RS-B25.

FRANÇAIS

■ CARACTERISTIQUES

Platine	Platine magnéto-cassette stéréo
Pistes	4 pistes, 2 canaux
Têtes	
ENREGISTREMENT/LECTURE	Tête en MX
Effacement	Tête en ferrite à double entrefer
Moteur	1-moteur
Système d'enregistrement	Polarisation CA
Fréquence de polarisation	80kHz
Système d'effacement	Polarisation CA
Vitesse de défilement de la bande	4,8cm/sec.
Réponse en fréquence	
Métal	20Hz~17.000Hz
	30Hz~17.000Hz (DIN)
	40Hz~16.000Hz±3dB
CrO_2	20Hz~17.000Hz
	30Hz~16.000Hz (DIN)
	40Hz~15.000Hz±3dB
Normal	20Hz~16.000Hz
	30Hz~15.000Hz (DIN)
	40Hz~14.000Hz±3dB

Rapport signal/bruit:	
(niveau de signal = niveau d'enregistrement maximum, bande magnétique de type CrO_2)	
Système de Dolby C	75dB (CCIR)
Système de Dolby B	67dB (CCIR)
Pas de système de NR	57dB (A pondéré)
Pleurage et scintillement	0,07% (WRMS)
	±0,13% (DIN)
Temps d'avance rapide et de rebobinage	
	Environ 90 secondes pour une cassette C-60
Sensibilité et impédance d'entrée	
MIC	0,25mV/400Ω~10kΩ
LIGNE	60mV/47kΩ
Tension et impédance de sortie	
LIGNE	400mV/1,5kΩ
HEADPHONES	80mV/8Ω
Consommation	16W
Alimentation	AC 50Hz/60Hz 220V pour l'Europe sauf la Grande Bretagne.
Dimensions (L×H×P)	430×99,5×229mm
Poids	3,4kg

■ METHODES DES MEASURES ET REGLAGES

REMARQUES: Placer les interrupteurs et les contrôles dans les positions suivantes, sauf indication contraire.
- Vérifier que les têtes soient propres.
- Vérifier que le cabestan et le galet presseur soient propres.
- Température ambiante admissible: 20±5°C
- Interrupteur de réduction de bruit: OUT
- Contrôle de l'équilibre: Centre
- Contrôles de niveau d'entrée: Maximum

Ⓐ Réglage de l'azimut de tête

Condition:
- Mode de lecture
- Mode de bande normale

Equipement:
- Voltmètre électronique
- Oscilloscope
- Bande étalon (azimut) ...QZZCFM

Réglage de l'équilibre de la sortie au canal gauche/canal droit

1. Brancher les appareils comme indiqué dans la Fig. 2.
2. Reproduire le signal de 8kHz de la bande étalon (QZZCFM). Régler la vis (B) dans la Fig. 3 pour obtenir les niveaux de sortie maximum pour les canaux gauche et droit. Lorsque les niveaux de sortie des canaux gauche et droit ne sont pas simultanément à leur maximum, les régler à nouveau de la façon suivante.
3. Faire tourner la vis indiquée dans la Fig. 3 pour trouver les angles A et C (point où les niveaux de sortie de crête pour les canaux gauche et droit sont obtenus respectivement). Situer alors l'angle B entre les angles A et C, autrement dit, en un point où les niveaux de sortie des canaux gauche et droit atteignent tous deux leur maximum. (Voir les Fig. 3 et 4).

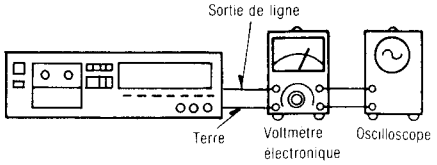

Fig. 2

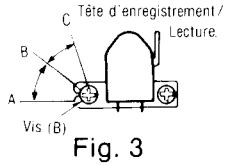

Fig. 3

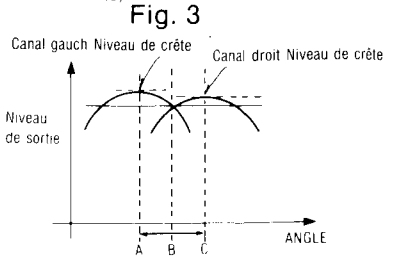

Fig. 4

Réglage de phase canal gauche/canal droit

4. Brancher les appareils comme indiqué dans la Fig. 5.
5. Reproduire le signal de 8kHz de la bande étalon (QZZCFM). Régler la vis (B) indiquée dans la Fig. 3 de sorte que les aiguilles des deux voltmètres électroniques oscillent au maximum, et qu'on obtienne sur l'oscilloscope une forme d'onde semblable à celle indiquée dans la Fig. 6.

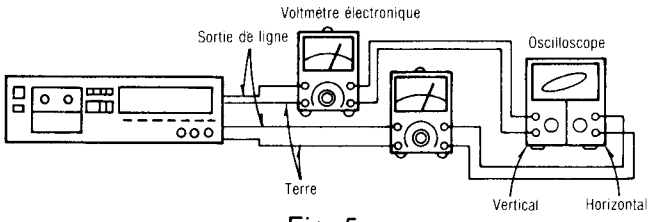

Fig. 5

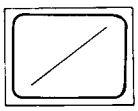

Fig. 6

Ⓑ Vitesse de défilement

Condition:
- Mode de lecture
- Mode de bande normale

Equipement:
- Fréquencemètre numérique
- Bande étalon...QZZCWAT

Précision de la vitesse de défilement

1. Brancher les appareils comme indiqué dans la Fig. 7.
2. Lire la bande étalon (QZZCWAT, 3000Hz) et appliquer le signal de lecture au fréquencemètre numérique.
3. Mesurer sa fréquence.
4. Sur la base de 3000Hz, déterminer la valeur à l'aide de la formule.

$$\text{Précision de vitesse} = \frac{f-3000}{3000} \times 100(\%)$$

avec f = valeur mesurée.

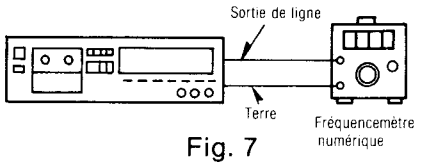

Fig. 7

5. Effectuer la mesure sur la partie médiane de la bande.

Valeur standard: 0,33% (3000±10Hz)

6. Si la valeur mesurée ne correspond pas à la valeur standard, régler au moyen de la vis VR de réglage de la vitesse de défilement indiquée dans la Fig. 1.
   Remarque: Utiliser un tournevis qui ne soit pas métallique pour le réglage de la précision de la vitesse de défilement sur cette unité.

Fluctuations de vitesse de défilement

Faire les mesures de la même façon que ci-dessus (au début, au milieu et en fin de bande) et déterminer la différence entre les valeurs maximale et minimale, puis calculer comme suit.

$$\text{Fluctuations de vitesse} = \frac{f_1-f_2}{3000} \times 100(\%)$$

f_1 = valeur maximale
f_2 = valeur minimale

Valeur standard: 1%

Ⓒ Réponse en fréquence à la lecture

Condition:
- Mode de lecture
- Mode de bande normale

Equipement:
- Voltmètre électronique
- Oscilloscope
- Bande étalon ...QZZCFM

1. Brancher les appareils comme indiqué dans la Fig. 2.
2. Lire la portion de réponse en fréquence de la bande étalon (QZZCFM).
3. Mesurer les niveaux de sortie à 315Hz, 12,5kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz, et 63Hz et comparer chaque niveau de sortie avec celui de la fréquence standard de 315Hz sur la borne LINE OUT.
4. Effectuer les mesures sur les deux canaux.
5. Vérifier que les valeurs mesurées se situent dans la bande spécifiée de la courbe de réponse en fréquence. (Voir Fig. 8).

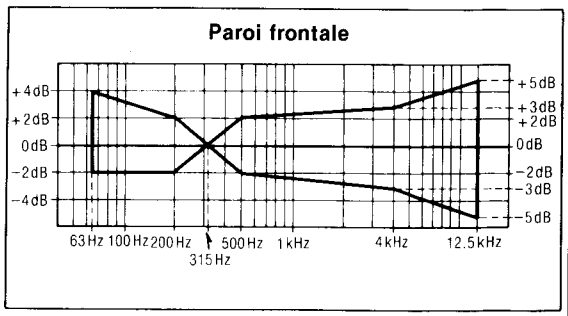

Fig. 8

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Ⓓ Gain à la lecture

Condition:
- Mode de lecture
- Mode de bande normale

Equipement:
- Voltmètre électronique
- Oscilloscope
- Bande étalon...QZZCFM

1. Brancher les appareils comme indiqué dans la Fig. 2.
2. Faire jouer la portion du niveau d'enregistrement normal sur la bande d'essai (QZZCFM, 315Hz) et, en utilisant un voltmètre électronique, mesurer le niveau de sortie aux sorties en ligne.
3. Effectuer les mesures sur les deux canaux.

Valeur standard: 0,4±0,05V

Réglage

1. Si la valeur mesurée ne correspond pas à la valeur standard régler VR5 (canal gauche) ou VR6 (canal droit). (Voir Fig. 1).
2. Après réglage, vérifier à nouveau la "réponse en fréquence à la lecture".

Ⓔ Courant d'effacement

Condition:
- Mode d'enregistrement
- Mode de bande métallique

Equipement:
- Voltmètre électronique
- Oscilloscope

1. Brancher les appareils comme indiqué dans la Fig. 9.
2. Placer l'UNITE sur le mode de bande métallique.
3. Appuyer sur les boutons d'enregistrement et de pause.
4. Lire le voltage sur le voltmètre électronique et calculer le courant d'effacement au moyen de la formule suivante:

$$\text{Courant d'effacement (A)} = \frac{\text{Voltage à la résistance R301}}{1\ (\Omega)}$$

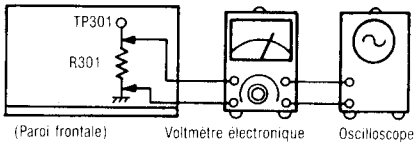

Fig. 9

Valeur standard: 155±15mA (bande métallique) (155±15mV)

5. Si la valeur mesurée ne correspond pas à la valeur standard, régler selon les instructions ci-après.

Réglage

- Si le courant d'effacement est supérieur à 170mA, couper le fil de connection.

Ⓕ Réponse de fréquence globale

Condition:
- Mode enregistrement/lecture
- Mode de bande normale
- Mode de bande CrO_2
- Mode de bande métallique
- Contrôles de niveau d'entrée...MAX

Equipement:
- Voltmètre électronique
- Atténuateur
- Oscillateur
- Oscilloscope
- Résistance (600Ω)
- Bande étalon vierge
  ...QZZCRA pour bande normale
  ...QZZCRX pour bande CrO_2
  ...QZZCRZ pour bande métallique

Remarque:

Avant de mesurer et régler la réponse de fréquence globale vérifier que la réponse en fréquence à la lecture soit correcte (pour la méthode de mesure, se reporter au paragraphe intitulé "Réponse en fréquence à la lecture").
(Le compensateur d'enregistrement est fixe.)

1. Brancher les appareils comme indiqué dans la Fig. 11.
2. Placer l'UNITE en mode pour bande normale, et introduire la bande étalon vierge normale (QZZCRA).
3. Appliquer le signal de 1kHz de l'oscillateur AF à la borne LINE IN, par l'intermédiaire de l'atténuateur.
4. Régler l'atténuateur de sorte que le niveau d'entrée soit de 20dB en-dessous du niveau d'enregistrement standard (niveau d'enregistrement standard = 0VU).
5. Régler l'oscillateur AF pour produire des signaux de 50Hz 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz et 10kHz et enregistrer ces signaux sur la bande étalon.
6. Reproduire les signaux enregistrés dans la phase 6, et vérifier si la courbe de réponse de fréquence se trouve dans les limites indiquées par la courbe de réponse de fréquence globale pour bandes normales (Fig. 10).
   (Si la courbe est comprise dans les spécifications, passer aux phases 7, 8 et 9).
   Si la courbe ne correspond pas aux spécifications du tableau, régler comme suit.

Tableau de l'ensemble des réponses en fréquence (Normale)

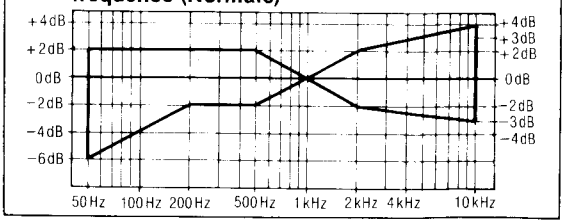

Fig. 10

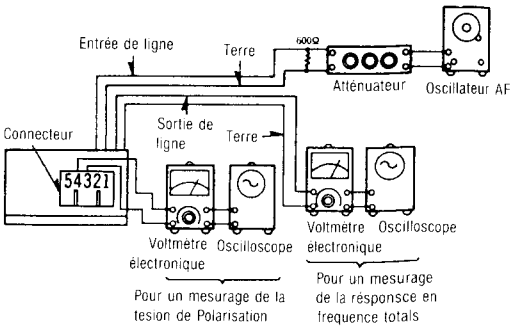

Fig. 11

Réglage (A):

Lorsque la courbe dépasse les spécifications du tableau de réponse de fréquence globale (Fig. 10), comme indiqué dans la Fig. 12.

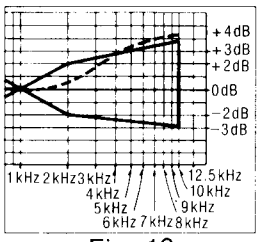

Fig. 12

1) Augmenter le courant de polarisation en tournant VR301 (canal gauche) et VR302 (canal droit).
2) Répéter les phases 5 et 6 pour confirmation. (Passer aux phases 7, 8 et 9 si la courbe est maintenant comprise dans les spécifications du tableau de la Fig. 10).
3) Si la courbe dépasse encore les spécifications (Fig. 10), augmenter encore le courant de polarisation et répéter les phases 5 et 6.

Réglage (B):

Lorsque la courbe tombe au-dessous des spécifications du tableau de fréquence globale (Fig. 10) comme indiqué dans la Fig. 13.

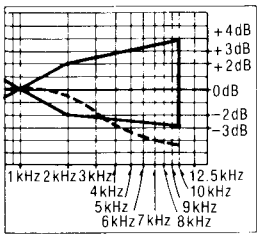

Fig. 13

1) Réduire le courant de polarisation en tournant VR301 (canal gauche) et VR302 (canal droit).
2) Répéter les phases 5 et 6 pour confirmation. (Passer aux phases 7, 8 et 9 si la courbe est maintenant comprise dans les spécifications du tableau de la Fig. 10).
5) Si la courbe tombe encore au-dessous des spécifications du tableau (Fig. 10), réduire encore le courant de polarisation et répéter les phases 5 et 6.

7. Placer l'UNITE en mode de bande CrO_2.
8. Enlever la bande étalon vierge normale et placer la bande étalon QZZCRX (bande CrO_2). Enregistrer les signaux de 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz et 12,5kHz. Reproduire ensuite ces signaux et vérifier si la courbe est comprise dans les limites indiquées par le tableau de réponse de fréquence globale pour les bandes CrO_2 (Fig. 14).
9. Placer l'UNITE en mode de bande métallique, changer la bande étalon pour la bande étalon vierge QZZCRZ (bande métallique), et enregistrer les signaux de 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz et 12,5kHz. Ensuite, lire les signaux et vérifier si la courbe se trouve entre les limites indiquées dans le tableau de réponse en fréquence globale pour les ruban CrO_2 (Fig. 14.)
10. Confirmer que les voltage de polarisation sont approximativement les suivants lorque le sélecteur de bande est mis sur ses différentes positions.
    • Mesurer la tension à la tête en utilisant un voltmètre électronique.

Tableau de l'ensemble des réponses en fréquence (CrO_2, Métallique)

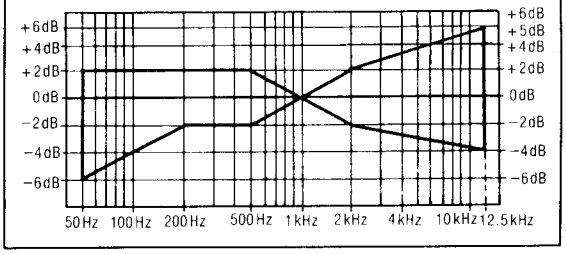

Fig. 14

Valeur référence:	**Autour de 7,7V (position: Normal)** **Autour de 13,3V (position: CrO_2)** **Autour de 18,3V (position: Metal)**

G Gain global

Condition:
- Mode d'enregistrement/lecture
- Mode de bande normale
- Contrôles de niveau d'entrée ...MAX
- Niveau d'entrée standard:

MIC .....-72^{+5}_{-3}dB (0,25mV)
LINE IN .....−24 ± 4dB (63mV)

Equipement:
- Voltmètre électronique
- Oscillateur AF
- Atténuateur
- Oscilloscope
- Résistance (600Ω)
- Bande étalon vierge...QZZCRA pour bande normale

1. Brancher les appareils comme indiqué dans la Fig. 15.
2. Introduire la bande étalon vierge (QZZCRA).
3. Placer l'UNITE en mode d'enregistrement.
4. Appliquer le signal de 1kHz de l'oscillateur AF à la borne LINE IN, par l'intermédiaire de l'atténuateur (−24dB).
5. Régler ATT jusqu'à ce que le niveau du moniteur aux sorties de ligne soit de 0,4V.
6. Faire jouer la bande enregistrée et s'assurer que le niveau de sortie aux sorties en ligne soit de 0,4V.
7. Si la valeur mesurée n'est pas de 0,42V, régler au moyen de VR7 (canal gauche) ou VR8 (canal droit).
8. Recommencer à partir de la phase (2).

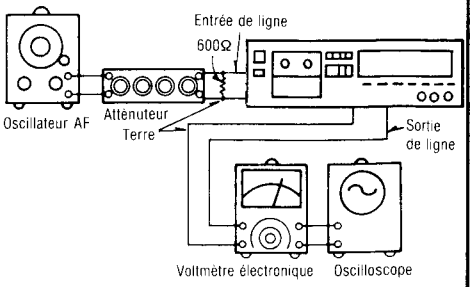

Fig. 15

FRANCAIS

H Vumètre de niveau

Condition:
- Mode d'enregistrement
- Contrôles de niveau d'entrée ...MAX

Equipement:
- Voltmètre électronique
- Atténuateur
- Oscillateur AF
- Oscilloscope
- Résistance (600Ω)

1. La connection de l'équipement d'essai est montré sur la Fig. 15.
2. Placer l'appareil sur le mode d'enregistrement.
3. Transmettre un signal de 1kHz (−24dB) à partir de l'oscillateur d'audiofréquence par l'atténuateur LINE IN.
4. Régler l'atténuateur jusqu'à ce que le niveau de contrôle à LINE OUT atteigne 0,4V.
5. Vérifier que le vu mètre à LED indique "0" lorsque LINE OUT est 0,4±0,05V.

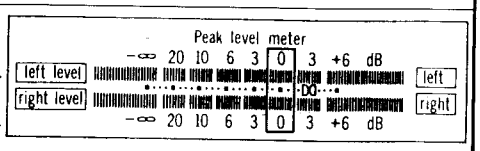

Fig. 16

I Circuit de réduction de bruit Dolby

Condition:
- Mode d'enregistrement
- Interrupteur de réduction de bruit Dolby...IN/OUT
- Interrupteur de sélection du système de réduction de bruit Dolby...B/C
- Contrôles de niveau d'entrée...MAX

Equipement:
- Voltmètre électronique
- Oscillateur AF
- Atténuateur
- Oscilloscope
- Résistance (600Ω)

Côté enregistrement

- Vérification des caractéristiques du codeur de type Dolby-B

1. Brancher les appareils comme indiqué dans la Fig. 17.
2. Placer l'unité sur le mode d'enregistrement. (L'interrupteur de sélection du système de réduction de bruit est sur la position OUT).
3. Appliquer un signal de 1kHz à la borne LINE IN.
4. Régler l'atténuateur de sorte que le niveau de sortie á la points 7 des circuits intégrés IC401 (canal gauche) et IC402 (canal droit) soit de 12,3mV.
5. Le niveau de sortie à la pointe 21 devrait être de 0dB (375mV).
6. Placer l'interrupteur de sélection du système de réduction de bruit sur B et s'assurer que le niveau du signal de sortie à la pointe 21 des circuits intégrés IC401 (canal gauche) et IC402 (canal droit) est de +6dB±1,5dB (753mV).
7. Placer l'interrupteur de sélection du système de réduction de bruit sur la position OUT et régler la fréquence sur 5kHz. Le niveau du signal de sortie à la pointe 21 devrait être de 0dB (375mV).
8. Placer l'interrupteur de sélection du système de réduction de bruit sur la position B et s'assurer que le niveau du signal de sortie à la pointe 21 des circuits intégrés IC401 (canal gauche) et IC402 (canal droit) soit de +8dB±1,5dB (948mV).

- Vérification des caractéristiques du codeur de type Dolby-C

9. Répéter les phases 1 à 5 ci-dessus.
10. Placer l'interrupteur de sélection du système de réduction de bruit Dolby sur la position C et s'assurer que le niveau de signal de sortie à la pointe 21 des circuits intégrés IC401 (canal gauche) et IC402 (canal droit) soit de 11,5dB±2dB (1,4V).
11. Placer l'interrupteur de sélection du système de réduction de bruit sur la position OUT et régler la fréquence sur 5kHz. Le niveau du signal de sortie à la pointe 21 devrait être de 0dB (375mV).
12. Placer l'interrupteur de sélection du système de réduction de bruit sur la position C et s'assurer que le niveau du signal de sortie à la pointe 21 des circuits intégrés IC401 (canal gauche) et IC402 (canal droit) soit de +8,5dB±2dB (1V).

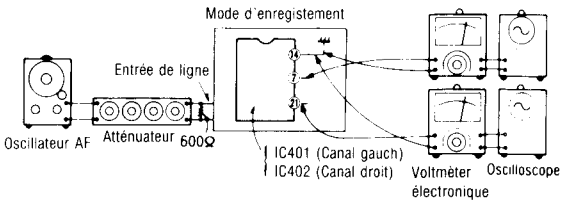

Fig. 17

ESPAÑOL

Sirvase utilizarse junto con manual de servicio para el model No. RS-B25.

■ ESPECIFICACIONES TECNICAS

Sistema de platina	Platina de cassette estéreo
Sistema de pistas	4 pistas, 2 canales
Cabezas de GRAB/REPROD	Cabeza de Cabeza de MX
Cabezas de borrado	Cabeza de ferrita de 2 entrehierros
Motores	1 motor
Frecuencia de polarización	80kHz
Sistema de borrado	Polarización de CA
Velocidad de cinta	4,8cm/seg.
Respuesta de frecuencia	
Metal	20Hz∼17,000Hz
	30Hz∼17.000Hz (DIN)
	40Hz∼16.000Hz±3dB
CrO_2	20Hz∼17.000Hz
	30Hz∼16.000Hz (DIN)
	40Hz∼15.000Hz±3dB
Normal	20Hz∼16.000Hz
	30Hz∼15.000Hz (DIN)
	40Hz∼14.000Hz±3dB

Señal a ruido:	
(niveau de señal = niveal de grabación máx. tipo de cinta CrO_2)	
con reducción de ruidos Dolby C	75dB (CCIR)
con reducción de ruidos Dolby B	67dB (CCIR)
sin reducción de ruidos	57dB (promedio A)
Variación de velocidad	0,07% (WRMS) ±0,13% (DIN)
Tiempo de avance rápido y rebobinado	Approx. 90 segundos con cintas C-60
Sensibilidad de entrada e impedancia	
MIC	0,25mV/400Ω∼10kΩ
LINE	60mV/47kΩ
Voltaje de salida e impedancia	
LINE	400mV/1,5kΩ
HEADPHONES	80mV/8Ω
Consumo de corriente	16W
Alimentación de energía	220V para Europe realizar Royaume-Uni.
Dimensions (An.×Al×Prof.)	430×99,5×229mm
Peso	3,4kg

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■ METODOS DE AJUSTE Y MEDIDA

NOTAS: Colocar los interruptores y controles en las posiciones siguientes a no ser que se especifique lo contrario:

- Asegurarse de que las cabezas estén limpias.
- Asegurarse de que los cabrestantes y los rodillos presores estén limpios.
- Temperatura ambiente aconsejable: 20±5°C (68±9°F)
- Interruptor NR: OUT
- Control del balance: Centro
- Controles del nivel de entrada: Máximo

Ⓐ **Ajuste de azimut de las cabezas**	Condición:	Equipo:
	• Modo de reproducción • Modo de cinta normal	• EVM (Voltímetro electrónico) • Osciloscopio • Cinta de prueba (azimut) ...QZZCFM

Ajuste del equilibrio de salida L-CH/R-CH (canal izquierdo/canal derecho)

1. Efectuar las conexiones como muestra la Fig. 2.
2. Reproducir la señal de 8kHz desde la cinta de prueba (QZZCFM). Ajustar el tornillo (B) en Fig. 3 para obtener niveles L-CH y R-CH de salida máxima. Cuando los niveles de salida de L-CH y R-CH no están al máximo, al mismo tiempo, reajustar de la siguiente forma:
3. Girar el tornillo mostrado en Fig. 3 para buscar los ángulos A y C (puntos donde los niveles de salida de cresta se obtienen para los canales derecho y izquierdo). Luego, localizar el ángulo B entre los ángulos A y C, por ej., el punto donde los niveles de salida de R-CH y L-CH estén equilibrados. (Consultar Fig. 3 y 4.)

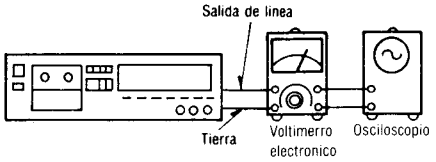

Fig. 2

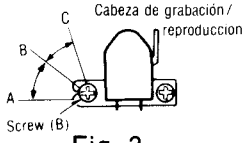

Fig. 3

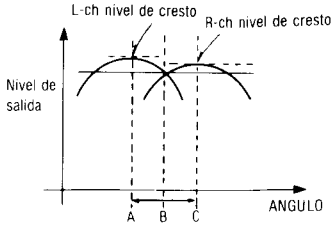

Fig. 4

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Ajuste de fase de L-CH/R-CH

4. Efectuar las conexiones como muestra la Fig. 5.
5. Reproducir la señal de 8kHz desde la cinta de prueba (QZZCFM). Ajustar el tornillo. (B) de la Fig. 3 de forma que las agujas indicadoras de los dos EVM giren hacia el máximo y se obtenga una forma de onda como la indicada en la Fig. 6 sobre el osciloscopio.

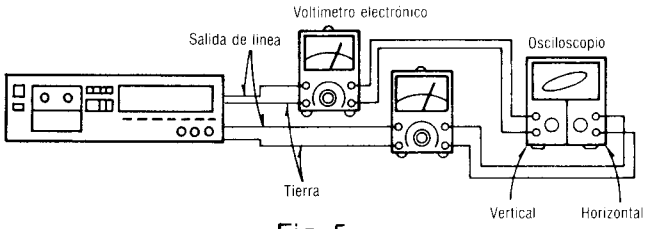

Fig. 5

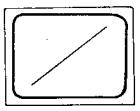

Fig. 6

Ⓑ Velocidad de la cinta

Condición:
- Modo de reproducción
- Modo de cinta normal

Equipo:
- Contador digital electrónico
- Cinta de prueba...QZZCWAT

Exactitud de la velocidad de cinta

1. La conexión del equipo de prueba se muestra en Fig. 7.
2. Reproducir la cinta de prueba (QZZCWAT 3.000Hz), y suministrar una señal de reproducción al contador digital electrónico.
3. Medir esta frecuencia.
4. Sobre la base de 3.000Hz, determinar el valor de la exactitud mediante la siguiente fórmula:

$$\text{Exactitud de la velocidad de cinta} = \frac{f-3.000}{3.000} \times 100(\%)$$

donde f = valor medido

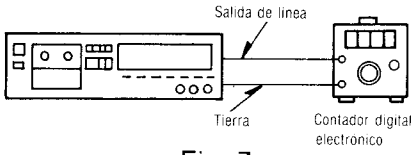

Fig. 7

5. Tomar medida en la sección media de la cinta.

Valor normal: 0,33% (3000±10Hz)

6. Si el valor medido no está dentro del valor estándar, ajustarlo usando el ajuste de velocidad de cinta VR mostrado en la Fig. 1.

Nota: No utilizar destornilladores metálicos cuando ajuste la precisión de la velocidad de la cinta en este aparato.

Fluctuación de la velocidad de cinta

Efectuar las mediciones de la misma manera que antes (al comienzo, mitad y final de la cinta) y determinar la diferencia entre los valores máximo y mínimo. Calcular de la forma siguiente:

$$\text{Fluctuación de la velocidad de cinta} = \frac{f_1-f_2}{3.000} \times 100(\%)$$

f_1 = valor máximo,
f_2 = valor mínimo

Valor normal: 1%

Ⓒ Respuesta de frecuencia de reproducción

Condición:
- Modo de reproducción
- Modo de cinta normal

Equipo:
- EVM (Voltímetro electrónico)
- Osciloscopio
- Cinta de prueba...QZZCFM

1. La conexión del equipo de prueba se muestra en la Fig. 2.
2. Reproducir la cinta de prueba de respuesta de frecuencia (QZZCFM).
3. Medir el nivel de salida en 315Hz, 12,5kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz y 63Hz y comparar cada nivel de salida con 315Hz de frecuencia normal, en LINE OUT.
4. Efectuar las medidas para ambos canales.
5. Asegurarse de que el valor medido está comprendido dentro de la gama especificada en el gráfico de la respuesta de frecuencia (mostrado en la Fig. 8).

Gráfico de respuesta de frecuencia de reproducción

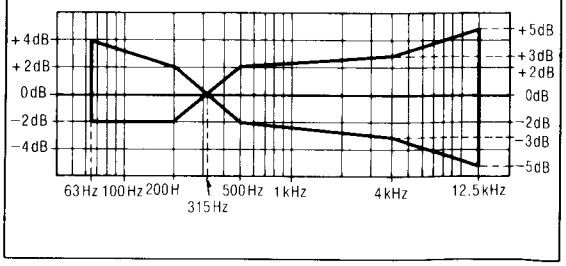

Fig. 8

Ⓓ Ganancia de reproducción

Condición:
- Modo de reproducción
- Modo de cinta normal

Equipo:
- EVM (Voltímetro electrónico)
- Osciloscopio
- Cinta de prueba...QZZCFM

1. La conexión del equipo de prueba se muestra en la Fig. 2.
2. Reproduzca la porción de nivel de grabación estándard en la cinta de prueba (QZZCFM 315Hz) y, usando EVM (voltímetro electrónico), mida el nivel de salida en "LINE OUTs" (salidas de línea).
3. Efectuar las medidas para ambos canales.

Valor normal: 0,4V±0,05V

Ajuste

1. Si el valor medido no está comprendido dentro del valor normal, ajustar VR5 (L-CH), VR6 (R-CH).
2. Despues del ajuste, comprobar de nuevo la "respuesta de frecuencia de reproducción".

Ⓔ Corriente de borrado

Condición:
- Modo de grabación
- Modo de cinta metal

Equipo:
- EVM (Voltímetro electrónico)
- Osciloscopio

1. La conexión del equipo de prueba se muestra en la Fig. 9.
2. Poner el aparato en el modo de cinta Metal.
3. Apretar los botones de pausa y grabación.
4. Tomar la lectura del voltaje en EVM y calcular la corriente de borrado mediante la fórmula siguiente:

$$\text{Corriente de borrado (A)} = \frac{\text{Voltaje entre terminales de R301}}{1\ (\Omega)}$$

Valor normal: 155±15mA (Modo de cinta...Metal) (155±15mV)

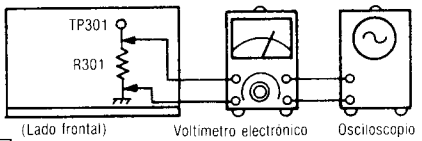

Fig. 9

5. Si el valor medido no está comprendido dentro del valor normal, ajustar de la forma siguiente:

Ajuste

- Si la corriente de borrado es mayor que 170mA, cortar el hilo del puente.

Ⓕ Respuesta de frecuencia total

Condición:
- Modo de reproducción/ grabación
- Modo de cinta normal
- Modo de cinta CrO_2
- Modo de cinta Metal
- Control de nivel de entrada ...MAX

Equipo:
- EVM (Voltímetro electrónico)
- ATT
- Oscilador de AF
- Osciloscopio
- Resistor (600Ω)
- Cinta de prueba (cinta en blanco de referencia)
  ...QZZCRA para Normal
  ...QZZCRX para CrO_2
  ...QZZCRZ para Metal

Nota:

Antes de medir y ajustar la respuesta de frecuencia total, asegurarse de la respuesta de frecuencia de reproducción. (Para el método de medida, sírvase consultar la respuesta de frecuencia de reproducción).
(Se fija el compensador de grabación.)

1. Efectuar las conexiones tal como se muestra en la Fig. 11.
2. Poner la UNIDAD en el modo de cinta normal y cargar la cinta de prueba (QZZCRA).
3. Aplicar una señal de 1kHz desde el oscilador de AF a través de ATT a LINE IN.
4. Ajustar el ATT de forma que el nivel de entrada sea de −20dB por debajo del nivel estándar de grabación (nivel estándar de grabación = 0VU).
5. Ajustar el oscilador de AF para generar señales de 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz y 10kHz y grabar, estas señales en la cinta de prueba.
6. Reproducir las señales grabadas en el paso 6, y comprobar si la curva de respuesta de frecuencia está dentro de los límites mostrados en el gráfico de respuesta de frecuencia total para las cintas normales (Fig. 10).
   (Si la curva está dentro de las especificaciones del gráfico, sequir con los pasos 7, 8 y 9).
   Si la curva no está dentro de las especificaciones del gráfico, ajustar de la forma siguiente:

Gráfico de respuesta de frecuencia de total (Normal)

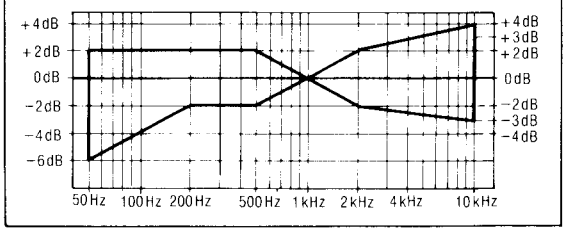

Fig. 10

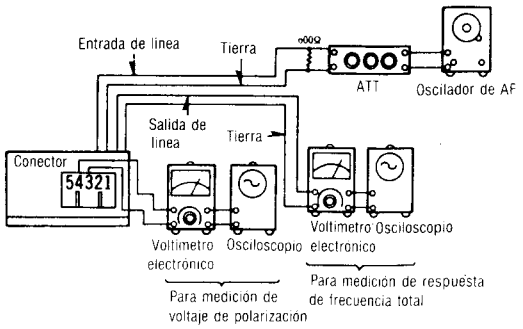

Fig. 11

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Ajuste A:

Cuando la curva excede las especificaciones del gráfico de respuesta de frecuencia total (Fig. 10) tal como se muestra en la Fig. 12.

1) Aumentar la corriente de polarización girando VR301 (L-CH) y, VR302 (R-CH).
2) Repetir los pasos 5 y 6 para confirmación. (Seguir con los pasos 7, 8 y 9 si la curva está ahora dentro de las especificaciones del gráfico de la Fig. 10).
3) Si la curva todavía excede las especificaciones (Fig. 10), aumentar aún más la corriente de polarización y repetir los pasos 5 y 6.

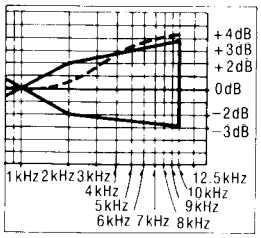

Fig. 12

Ajuste B:

Cuando la curva está por debajo de las especificaciones del gráfico de respuesta de frecuencia total (Fig. 10) tal como se muestra en la Fig. 13.

1) Reducir la corriente de polarización girando VR301 (L-CH) y VR302 (R-CH).
2) Repetir los pasos 5 y 6 para confirmación. (Seguir con los pasos 7, 8 y 9 si la curva está ahora dentro de las especificaciones del gráfico de la Fig. 10.)
3) Si la curva todavía cae por debajo de las especificaciones del gráfico (Fig. 10), reducir aún más la corriente de polarización y repetir los pasos 5 y 6.

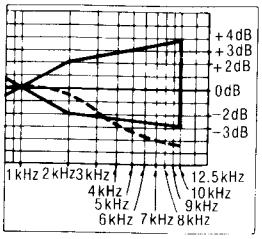

Fig. 13

7. Poner la UNIDAD en el modo de cinta CrO_2.
8. Cambiar la cinta de prueba a QZZCRX y grabar señales de 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz y 12,5kHz. Luego, reproducir las señales y comprobar si la curva está dentro de los límites mostrados en el gráfico de respuesta de frecuencia total para las cintas CrO_2 (Fig. 14).
9. Poner la UNIDAD en modo de cinta a Metal y cambiar la cinta de prueba a QZZCRZ, y grabar señales de 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz y 12,5kHz. Luego, reproducir las señales y comprobar si la curva está dentro de los limites mostrados en el gráfico de respuesta de frecuencia total para las cintas de Metal (Fig. 14).
10. Asegurarse de que las tensión de polarización sean aproximadamente las que se indican a continuación cuando el aparato esté colocado en un modo de cinta distinto.
    • Medir la tensión en la cabeza utilizando el EVM.

Gráfico de respuesta de frecuencia de total (CrO_2 Metal)

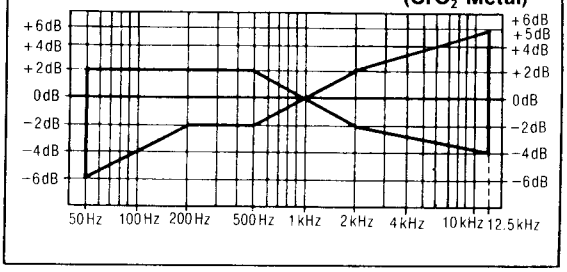

Fig. 14

Valor de referencia:	**Unos 7,7V (posición Normal)** **Unos 13,3V (posición CrO_2)** **Unos 18,3V (posición Metal)**

Ⓖ Ganancia total

Condición:
- Modo de reproducción/ grabación
- Modo de cinta Normal
- Controles del nivel de entrada ...MAX.
- Nivel de entrada normal:

MIC .....-72^{+5}_{-3}dB (0,25mV)
LINE IN .....-24 ± 4dB (63mV)

Equipo:
- EVM (Voltímetro electrónico)
- Oscilador de AF
- ATT
- Osciloscopio
- Resistor (600Ω)
- Cinta de prueba (cinta en blanco de referencia) ...QZZCRA para Normal

1. La conexión del equipo de prueba se muestra en la Fig. 15.
2. Cargar la cinta normal en blanco de referencia (QZZCRA).
3. Poner el aparato en el modo grabación.
4. Suministrar una señal 1kHz (−24dB) desde el oscilador de AF a través de ATT a LINE IN (ENTRADA DE LINEA).
5. Ajuster ATT hasta que el nivel del monitor en "LINE OUTs" sea 0,4V.
6. Reproduzca la cinta grabada y asegúrese de que el nivel de salida en "LINE OUTs" sea 0,4V.
7. Si el valor medido no es de 0,42V, ajustarlo con VR7 (L-CH), VR8 (R-CH).
8. Repetir desde el punto (2).

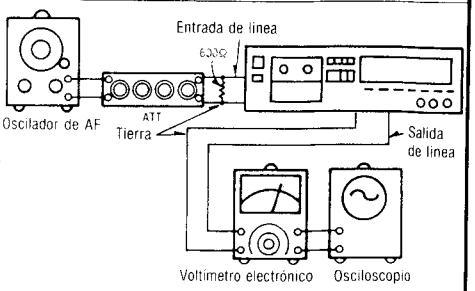

Fig. 15

ⓗ Medidor de nivel

Condición:
- Modo de grabación
- Controles del nivel de entrada ...MAX

Equipo:
- EVM (Voltímetro electrónico)
- ATT
- Oscilador de AF
- Osciloscopio
- Resistor (600Ω)

1. Comprobar la conexión del equipo que se muestra en la Fig. 15.
2. Colocar la unidad en el modo de grabación.
3. Suministrar una señal de 1kHz (−24dB) desde el oscilador de AF a través del ATT a la ENTRADA DE LINEA (LINE IN).
4. Ajustar el ATT hasta que el nivel del monitor en la SALIDA DE LINEA (LINE OUT) llegue a ser 0,4V.
5. Comprobar que el medidor de nivel por LED "0" está encendido cuando la salida de 0,4V±0,05V aparezca en la SALIDA DE LINEA.

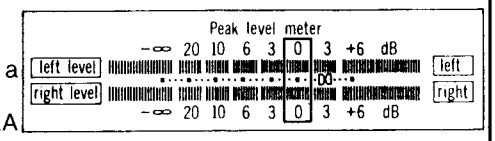

Fig. 16

ⓘ Circuito Dolby de de ruido (NR)

Condición:
- Modo de grabación
- Interruptor Dolby NR ...IN/OUT
- Interruptor selector del Dolby NR...B/C
- Controles del nivel de entrada...MAX

Equipo:
- EVM (Voltímetro electrónico)
- ATT
- Resistor (600Ω)
- Oscilador de AF
- Osciloscopio

Lado de grabación

- Comprobación de las caracteristicas del condificador tipo Dolby B.
  1. Efectuar las conexiones segun se muestra en la Fig. 17.
  2. Colocar la unidad en el modo de grabación (el interruptor selector NR está en OUT).
  3. Aplicar una señal de 1kHz a LINE IN.
  4. Ajustar el ATT de forma que el nivel de salida en el terminal 7 del IC401 (L-CH) e IC402 (R-CH) sea de 12,3mV.
  5. El nivel de salida en el terminal 21 deberá ser de 0dB (375mV).
  6. Colocar el interruptor selector NR en B, y asegurarse de que el nivel de la señal de salida en el terminal 21 del IC401 (L-CH) e IC402 (R-CH) sea de +6dB±1,5dB (753mV).
  7. Colocar el interruptor NR en OUT y ajustar la frecuencia a 5kHz. El nivel de la señal de salida en el terminal 21 deberá ser de 0dB (375mV).
  8. Colocar el interruptor selector NR en B y asegurarse de que el nivel de la señal de salida en el terminal 21 del IC401 (L-CH) e IC402 (R-CH) sea de +8dB±1,5dB (948mV).
- Comprobación de las características del codificador tipo Dolby C.
  9. Repetir los pasos 1 a 5 anteriores.
  10. Colocar el interruptor selector NR en C y asegurarse de que el nivel de la señal de salida en el terminal 21 del IC401 (L-CH) e IC402 (R-CH) sea de +11,5dB±2dB (1,4V).
  11. Colocar el interruptor selector NR en la posición OUT y ajustar la frecuencia a 5kHz. La señal de salida en el terminal 21 deberá ser de 0dB (375mV).
  12. Colocar el interruptor selector NR en C, y asegurarse de que el nivel de la señal de salida del terminal 21 del IC401 (L-CH) e IC402 (R-CH) sea de +8,5dB±2dB (1V).

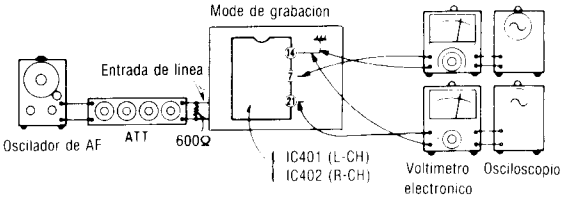

Fig. 17

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SERVICE NEWS

Panasonic Service
Deutschland GmbH

Nr.: 369	Datum: 25.06.86	31/86
THEMA	TEXT	

RS-B 25

Erscheinungsbild:

Bei Wiedergabe von Eigenaufnahmen auf Metall-Band ist der Pegel um 3 bis 15 dB reduziert, nicht jedoch auf Normal- oder CrO2 - Band.

Ursache:

Der Kopfspiegel ist entweder verschmutzt oder nicht vollständig von visuell unsichtbaren Ausscheidungen gereinigt.

Abhilfe:

Fensterleder mit Lackpolierpaste oder Flüssigkeit benetzen und Kopfspiegel flächig nachpolieren bis Pegelabsenkung behoben ist. Dann mit Gaze ev. Rückstände abreiben. Werksseitig komplett gereinigte Geräte tragen hinter der Seriennummer einen schwarzen Balken.

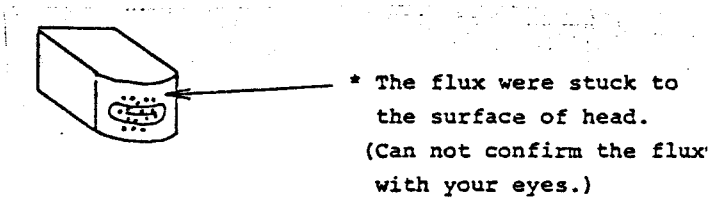

Abb.: Kopf

Panasonic Service
Deutschland GmbH

☒ Niederlassungen SVC	☒ Autor. Händler BW	☐ Autor. Händler WW	☒ EK/VK
☒ KDZ	☐ Autor. Händler CarA	☒ QC	☒ Serviceberater / Schulung